The Cooper Union:
Sustaining the Mission

Self-Study Report
Middle States
Decennial
Accreditation Review
April 6–9, 2008

THE COOPER UNION
FOR THE ADVANCEMENT
SCIENCE AND ART
Self-Study for Middle States Accreditation

Eligibility Certification Statement iii
Guide to Self-Study Fulfillment of Middle States Standards vi
Strategic Planning and Middle States Self-Study Chronology vii
Middle States Electronic Resource ix
Liaison Contacts | Self-Study Steering Committee x
The Cooper Union Board of Trustees | Academic Council xi
President’s Council | Engineering Advisory Council xii
Architecture Dean’s Circle xiii
Senior Staff and Management Team Contact Information xiv
The Cooper Union Organization Chart xvi
Table of Contents xvii
   Tables xxiii
   Figures xxv

This self-study contains much data in tables and charts. In addition, there is an appendix that lists further web-accessible documentation related directly to the text. All studies, reports, complete data sources and other materials referenced in this self-study may be found on The Cooper Union’s Middle States Electronic Resource or in the Document Room. Institutional Resource surveys, reports and studies may also be accessed via the Middle States Electronic Resource. Staff contacts for additional data and instructions for accessing the Middle States Electronic Resource appear in the next section.
November 17, 2005

Dr. George Campbell Jr.
President
The Cooper Union for the Advancement of Science & Art
30 Cooper Square
New York, NY 10003

Dear Dr. Campbell Jr.:

At its session on November 16, 2005, the Middle States Commission on Higher Education acted:

To accept the monitoring report and to commend the institution for progress to date. The next evaluation visit is scheduled for 2007-2008.

Enclosed for your information is a copy of the Statement of Accreditation Status for your institution. The Statement of Accreditation Status (SAS) provides important basic information about the institution and its affiliation with the Commission, and it is made available to the public in the Directory of Members and Candidates on the Commission’s website at www.mscche.org. Accreditation applies to the institution as detailed in the SAS; institutional information is derived from data provided by the institution through annual reporting and from Commission actions. If any of the institutional information is incorrect, please contact the Commission as soon as possible.

Please check to ensure that published references to your institution’s accredited status (catalog, other publications, web page) include the full name, address, and telephone number of the accrediting agency. Further guidance is provided in the Commission’s policy statement Advertising, Student Recruitment, and Representation of Accredited Status, which can be obtained from our website.

Please be assured of the continuing interest of the Commission on Higher Education in the well-being of Cooper Union for the Advancement of Science & Art. If any further clarification is needed regarding the SAS or other items in this letter, please feel free to contact Dr. Luis G. Pedraja, Executive Associate Director.

Sincerely,

[Signature]

Judith Gay
Chair

The Middle States Commission on Higher Education accredits institutions of higher education in Delaware, the District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, the U.S. Virgin Islands, and other locations abroad.
Middle States Commission on Higher Education
www.acms.org

STATEMENT OF ACCREDITATION STATUS

THE COOPER UNION FOR THE ADVANCEMENT OF SCIENCE & ART
30 Cooper Square
New York, NY 10003
Phone: (212) 353-4100; Fax: (212) 353-4271
www.cooper.edu

Chief Executive Officer: Dr. George Campbell Jr., President

INSTITUTIONAL INFORMATION

Enrollment (Headcount): 909 Undergraduate; 47 Graduate
Control: Private (Non-Profit)
Affiliation: n/a
Institution Type: Specialized
Degrees Offered: Bachelor's, Certificate/Diploma, Master's
Distance Learning: No

National and Specialized Accreditation: National Association of Schools of Art & Design, Commission on Accreditation; Accrediting Board for Engineering and Technology, Inc.; National Architecture Accrediting Board

Instructional Locations

Branch Campuses: None

Additional Locations: None

Other Instructional Sites: None

ACCREDITATION INFORMATION

Status: Member since 1946
Last Reaffirmed: November 19, 2003
Most Recent Commission Action:

November 16, 2005:  To accept the monitoring report and to commend the institution for progress to date. The next evaluation visit is scheduled for 2007-2008.

Brief History Since Last Comprehensive Evaluation:

November 19, 2003:  To accept the Periodic Review Report and to reaffirm accreditation. To request a monitoring report by October 1, 2005 documenting further implementation of a long-term financial plan with measurable results. The next evaluation visit is scheduled for 2007-08.

Next Self-Study Evaluation: 2007 - 2008

Next Periodic Review Report: 2013

Date Printed: November 17, 2005

DEFINITIONS

Branch Campus - A location of an institution that is geographically apart and independent of the main campus of the institution. The location is independent if the location: offers courses in educational programs leading to a degree, certificate, or other recognized educational credential; has its own faculty and administrative or supervisory organization; and has its own budgetary and hiring authority.

Additional Location - A location, other than a branch campus, that is geographically apart from the main campus and at which the institution offers at least 50 percent of an educational program.

Other Instructional Sites - A location, other than a branch campus or additional location, at which the institution offers one or more courses for credit.
Guide to Self-Study Fulfillment of Middle States Standards

In accordance with the Self-Study Design presented to Middle States Commission on Higher Education, The Cooper Union has conducted a comprehensive self-study examining all aspects of the college. Through this self-study, The Cooper Union demonstrates compliance with all fourteen of Middle States standards. The general structure of the chapters follows the sequence in which the Middle States standards appear in the Characteristics of Excellence with two exceptions:

<table>
<thead>
<tr>
<th>Characteristics of Excellence</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 1: Mission, Goals and Objectives</td>
<td>One</td>
</tr>
<tr>
<td>Standard 2: Planning, Resource Allocation</td>
<td>One</td>
</tr>
<tr>
<td>Standard 3: Institutional Resources</td>
<td>Two</td>
</tr>
<tr>
<td>Standard 4: Leadership and Governance</td>
<td>Three</td>
</tr>
<tr>
<td>Standard 5: Administration</td>
<td>Three</td>
</tr>
<tr>
<td>Standard 6: Integrity</td>
<td>Three</td>
</tr>
<tr>
<td>Standard 7: Institutional Assessment</td>
<td>Four</td>
</tr>
<tr>
<td>Standard 8: Student Admissions</td>
<td>Five</td>
</tr>
<tr>
<td>Standard 9: Student Support Services</td>
<td>Five</td>
</tr>
<tr>
<td>Standard 10: Faculty Five: Faculty Resources</td>
<td>Six</td>
</tr>
<tr>
<td>Standard 11: Educational Offerings</td>
<td>Seven</td>
</tr>
<tr>
<td>Standard 12: General Education</td>
<td>Six</td>
</tr>
<tr>
<td>Standard 13: Related Educational Activities</td>
<td>Six</td>
</tr>
<tr>
<td>Standard 14: Assessment of Student Learning</td>
<td>Seven</td>
</tr>
</tbody>
</table>
Strategic Planning and Middle States Self-Study Chronology

A note on the Self-Study process and chronology

More than fifty members of The Cooper Union community participated directly in this self-study process. In the Summer of 2005, President George Campbell Jr. provided an overall charge to the faculty and administration for self-study preparation, and appointed the then-acting Dean of Humanities and Social Sciences, Peter Buckley, as the Chair of the Self-Study Steering Committee. The committee, formed in December 2005, consisted of two representatives from each of the four faculties and key members of the administrative units. In November 2006, President George Campbell Jr. launched a new strategic planning initiative. The following chronology indicates the points of interaction between the self-study and the planning efforts.

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2005</td>
<td>Steering Committee Chair and membership selected</td>
</tr>
<tr>
<td>April 2006</td>
<td>Draft Self-Study design finalized, including charge questions for working groups</td>
</tr>
<tr>
<td>April 18, 2006</td>
<td>Visit by Dr. Luis Pedraja, Middle States Liaison</td>
</tr>
<tr>
<td>June 1, 2006</td>
<td>Submission of self-study Design to Middle States</td>
</tr>
<tr>
<td>November 2006</td>
<td>Launch of strategic planning process</td>
</tr>
<tr>
<td>December 2006</td>
<td>Complete organization of Strategic Planning teams and Work Program</td>
</tr>
<tr>
<td>January 2007</td>
<td>Steering committee chair provides overview of Middle States’ expectations of linkages between self-study and strategic planning to the Academic Council</td>
</tr>
<tr>
<td>February 2007</td>
<td>Academic and administrative units provide updated mission, goals and objectives, including descriptions of assessment measures to Steering Committee</td>
</tr>
<tr>
<td>March 2007</td>
<td>Steering committee chair provides overview of Middle States accreditation standards and assessment expectations to Academic and Student Affairs committee Meeting of the board</td>
</tr>
<tr>
<td>March 2007</td>
<td>Academic and administrative units complete portfolios and submit to Academic Council</td>
</tr>
<tr>
<td>April 23, 2007</td>
<td>Academic Council completes review of first draft Strategic Plan 2007-2012</td>
</tr>
<tr>
<td>April 24, 2007</td>
<td>Middle States Steering Committee and Academic Council meet in working session to review draft Strategic Plan 2007-2012</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>April 26, 2007</td>
<td>Middle States Steering Committee reviews second draft of Strategic Plan 2007-2012 and provides comments</td>
</tr>
<tr>
<td>April 30, 2007</td>
<td>Academic Council completes third draft of Strategic Plan 2007-2012</td>
</tr>
<tr>
<td>May 4, 2007</td>
<td>Draft Strategic Plan 2007-2012 released to The Cooper Union community for review and comments</td>
</tr>
<tr>
<td>June 5, 2007</td>
<td>Academic and Student Affairs Committee of the Board of Trustees reviews draft Strategic Plan 2007-2012</td>
</tr>
<tr>
<td>July 31, 2007</td>
<td>Formal review and comments of Strategic Plan 2007-2012 concludes</td>
</tr>
<tr>
<td>September 8, 2007</td>
<td>Academic Council retreat: review of community comments and suggestions regarding Strategic Plan 2007-2012</td>
</tr>
<tr>
<td>October 8, 2007</td>
<td>The Steering committee completes first draft of self-study report</td>
</tr>
<tr>
<td>October 11, 2007</td>
<td>Academic Council reviews self-study report before posting to the community</td>
</tr>
<tr>
<td>October 12, 2007</td>
<td>Draft Self-study report sent to Middle States Team Chair, Dr. John DiNardo</td>
</tr>
<tr>
<td>October 15–Nov 9, 2007</td>
<td>Community Review period for Draft Self-Study Report</td>
</tr>
<tr>
<td>November 19, 2007</td>
<td>Academic Council reviews succeeding draft of self-study report</td>
</tr>
<tr>
<td>October 26, 2007</td>
<td>Dr. John DiNardo, Team Chair’s preliminary visit to The Cooper Union; Final Draft of Strategic Plan 2007-2012 posted</td>
</tr>
<tr>
<td>November 27, 2007</td>
<td>Board of Trustees Academic and Student Affairs Committee reviews each recommendation and suggestion of the self-study report</td>
</tr>
<tr>
<td>November 2007</td>
<td>Strategic Plan 2007-2012 published; community discussions and implementation of plan</td>
</tr>
<tr>
<td>Nov 28, 2007–Jan 15, 2008</td>
<td>Final revisions to the self-study report completed</td>
</tr>
<tr>
<td>January 16, 2008</td>
<td>Self-study report sent to Copy Editor</td>
</tr>
<tr>
<td>February 4, 2008</td>
<td>Self Study Report sent to Design Center for production</td>
</tr>
<tr>
<td>February 11, 2008</td>
<td>Middle States Team members to receive self-study report</td>
</tr>
<tr>
<td>April 6-9, 2008</td>
<td>Middle States Team Visit</td>
</tr>
</tbody>
</table>
Middle States Electronic Resource

Middle States Self-Study Web Site
Early on in the Self-Study and strategic planning activities The Cooper Union established a website in order to have a central location for documents, reports and other essential materials. This was the first time that The Cooper Union has used such document collection technology in the accreditation process, and the web site has proven to be an invaluable resource, not just for this research, but also for ongoing communication. Many reports from all units and programs support this self-study. This report refers to documents that are both available on the website and in the Document Room.

To access The Cooper Union Middle States electronic resource, Middle States team members should visit the URL listed below. Since there is restricted access to this site, a prompt will appear requiring team members to enter a “username” and “password.” The following username and password will grant access to the site:

SITE: http://middlestates.cooper.edu
USERNAME: msa08teamcu
PASSWORD: _____________________

From there the navigation should be intuitive.

The final self-study is the product of many different collaborators all of whom worked diligently to provide an impartial voice. The final document is somewhat longer than planned; however, the comprehensive nature of this review, combined with the very important issues that The Cooper Union has analyzed, made the 100-page target difficult to achieve.

The assessment and strategic planning work represented in this self-study are ongoing processes. While this document captures data and reports as of the Fall of 2007, additional materials may emerge leading up to the Middle States Team Visit in April 2008. The Cooper Union will make every effort to update this report with additional data as necessary and invites the Middle States Team to request any additional information needed.
Liaison Contacts

For overall coordination of the Self-Study and team visit schedule, travel, hotel, meals and other logistical needs, please contact:
Lawrence Cacciatore, Director of Operations, Office of the President
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For additional documents and data pertaining to outcomes assessment, please contact:
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For additional documents and data pertaining to financials, please contact:
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The full list of senior staff contacts is included at the end of this section.
Additionally, the complete staff and faculty directory is available on the website at http://middlestates.cooper.edu/CUTeldirectory0708.pdf

Self-Study Steering Committee
Diana Agrest, Professor, Irwin S. Chanin School of Architecture (from Fall 2007)
Kate Brumder, Student, Irwin S. Chanin School of Architecture
Peter Buckley, (Chair) Professor, Faculty of Humanities and Social Sciences
Gerardo del Cerro, Director of Assessment and Innovation
Ellen Dorsey, Associate Registrar
Fred Fontaine, Professor, Albert Nerken School of Engineering
Day Gleeson, Professor, School of Art
Claire Gunning, Librarian
Claire McCarthy, Director, Public Affairs
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Mary Stieber, Professor, Faculty of Humanities and Social Sciences.
Richard Stock, Professor, Albert Nerken School of Engineering
Milton Yuen, Controller
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Sandra Priest Rose  
William H. Sandholm  
Richard Schwartz  
Georgiana J. Slade  
Philip P. Trahanas  
Martin Trust  
Roger C. Tucker III  
Jason H. Wright

*Notes:*

Cynthia Weiler (up for election on March 4, 2008)

Carmi Bee, President of the Cooper Union Alumni Association (ex-officio)

**Academic Council**

President George Campbell Jr., Chair  
Dean Eleanor Baum, Albert Nerken School of Engineering  
Dean Saskia Bos, School of Art  
Vice President Ronni Denes, External Affairs  
Dean William Germano, Faculty of Humanities and Social Sciences  
Vice President Robert Hawks, Business Affairs and Treasurer  
Dean Linda Lemiesz, Student Services  
Dean Mitchell Lipton, Admissions and Records  
Dean Anthony Vidler, Irwin S. Chanin School of Architecture  
Lawrence Cacciatore (staff)
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Preston Davis
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Milton Glaser
Alexander C. Gorlin

T. J. Gottesdiener
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Carol Sutton Lewis
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Toshiko Mori
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Andrew Russell
Morley Safer
Sara Lee Schupf
Charles Shorter
Neal Slavin
Martha Stewart
Willard L. Warren
William D. Zabel

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Robert A. Bernhard
Kevin Burke
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Seth Dubin
Howard Flagg
Jack D. Goodman

Russell Hulse
Marisa Lago
Stanley Lapidus
Jay Moskowitz
Frank Napolitano
Thomas Iovino
Richard Schwartz
Steven Silberstang

Richard J. Slember
Donald J. Toman
Richard Tomasetti
Willard Warren
Philip Weisberg
Marie Wieck
Rosalyn Sussman Yalow
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Marc Appleton
John S. Bales
Pamela Belyea
Joanne Leonhardt Cassullo
Jeanine Centuori
Margaret Deamer
Paul Deppe
David Diamond
Sandra Donner and Kenneth Francis
Ronald W. Drucker and Lisa Ann Ware
David H. Ellison
Andrew M. Fethes
Rosalie Genevro
Judith Gerrard and Robert Tan
TJ Gottesdiener
Robert Harris
Amy L. Jackson
Elise Jaffe and Jeffrey Brown
Tasos Kokoris
Katherine Kollar

Don Lawrence
Paul A. Lubowicki
Grace Lynch
Jon A. Maass
Dean Maltz
Mr. and Mrs. Stephen Moran Mullins
Ran Oron
Holly Ross
Michael Samuelian
Thomas Scheerer
Timothy Schollaert
Ricardo Scofidio
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Lee H. Skolnick
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Table of Contents

Chapter 1
Mission, Goals, Planning, Resource Allocation and Institutional Renewal: 1
Middle States Standards 1 and 2
THE COOPER UNION’S MISSION 1
- History of the Mission
- The President’s Vision
- Current Institutional Goals
- Review of the Previous Strategic Planning Document

BUDGET PROCESS 12
- Changes to the Budgetary Process
- Evidence of Planned Resource Allocation
- Trends in Instructional Costs

WORKING TOWARDS A NEW STRATEGIC PLAN 17
Suggestions and Recommendations

Chapter 2
Institutional Resources: Middle States Standard 3 19
FINANCIAL RESOURCES 19
- Real Estate Asset Development
- The Capital Campaign
- Endowment and Debt
- Fundraising
- The Campaign for Cooper Union
- Other Revenues
- Strategic Financial Assessment

PHYSICAL RESOURCES 34
- Physical Planning
- New York City Planning Process
- New Academic Building
- The Foundation Building
- Maintenance and Safety
Chapter 3

**Leadership, Governance, Administration and Integrity:**

*Middle States Standards 4, 5 and 6*

**Leadership**

- Board of Trustees: Composition and Operation
- Flow of Communication
- The Organizational Structure of The Cooper Union

**Integrity**

- Conflict of Interest
- Issues of Intellectual Integrity
- Research and Patents
- Conflict Resolution, Grievance Policies and Codes of Conduct

Suggestions and Recommendations

Chapter 4

**Institutional Assessment: Middle States Standard 7**

**New Strategic Planning**

**Characteristics of Institutional Assessment**

- Examples of Data Collected
- Institutional Loop-Closing

Suggestions and Recommendations
Chapter 5

Admissions, Retention and Student Support Services: 75
Middle States Standards 8 and 9

Admissions 75
- Geographic Distribution
- Ethnic Distribution
- Gender Distribution
- Yield
- Academic Profile
- Selectivity
- Transfer Students
- Recruitment

Student Services 82
- The Library
- The Center for Writing and Language Arts
- Academic Program Advising
  - Advisement in Architecture
  - Advisement in Art
  - Advisement in Engineering
  - Advisement in the Faculty of Humanities and Social Sciences
- Student Life
  - The Financial Aid Office
  - Center for Career Development
  - Residence Life
  - Student Council
  - Athletic Association
  - Disability and Medical Services

Suggestions and Recommendations
Chapter 6

Faculty, General Education and Related Educational Activities: 93

Middle States Standards 10, 12 and 13

Faculty

- Full-time Faculty
- Proportional and Adjunct Faculty
- Administrators and Staff
- Faculty Diversity
- Faculty Credentials
- Faculty Workloads
- Deployment of Faculty
- Faculty Compensation
- Adjunct Compensation
- Faculty Development, Assessment, Rank and Tenure
- Promotion and Tenure Process
- Academic Freedom
- Faculty Scholarship and Professional Activity
- Survey Data: Alumni Opinions of Cooper Union Faculty

General Education

- Information Literacy
- Faculty of Humanity and Social Sciences
- Department of Mathematics
- Department of Physics
- Department of Chemistry

Related Educational Activities

- Public Programs
- Space Rentals
- The School of Art Summer Residency Program
- Saturday Outreach Program
- Research Internship Program
- Immigrant Re-Training Program

Suggestions and Recommendations
Chapter 7

Educational Offerings and Assessment of Student Learning: Middle States Standards 11 and 14

PROGRAMES

Irwin S. Chanin School of Architecture
  Program Description
  Curriculum
  The Five-Year Sequence

The School of Art
  Program Description
  School of Art Certificate Program

Albert Nerken School of Engineering
  Program Description

STUDENT LEARNING ASSESSMENT

Architecture
  Professional Accreditation
  Student Learning Outcomes Assessment in Architecture
  Admissions Process
  Assessment Plan
  Meetings between the Deans and Students
  Studio Environment
  Design Studio
  Governance
  Faculty, Alumni and Student Surveys
  Course Questionnaires

Art
  Professional Accreditation
  Governance
  Recruitment and Admissions
  Curriculum Assessment
  Discursive Sites
  Exchange and Mobility Study
  Assessment through Presentation and Exhibition of Student Work
Engineering
Student Learning Outcomes Assessment in Engineering
School-wide Assessment Procedures
Major changes in the School of Engineering, 2000-2006
due to Assessment Results
Challenges Over the Next Five Years

INSTITUTION-WIDE MEASUREMENTS OF STUDENT LEARNING  150
Institution-wide Assessment Studies
Career Data
   Recruiter Feedback Survey
   Placement Survey
Connect
External Assessments
Student Awards and Prizes
External Media Coverage
Alumni Recognition, Awards, Prizes
Indirect Measures: Exit Survey Data
Indirect Measures: Alumni Survey Data
Loop Closing

Suggestions and Recommendations

Conclusion  169
Tables

**Chapter 1**
Table 1: Yearly Variation in Cost, 2001–2006 Analysis of Instruction and Academic Support 14
Table 2: Yearly Variation in Cost, 2001–2006, Analysis of Institutional Support 15

**Chapter 2**
Table 3: Major Gift Table: Progress at End-of-Year 2007 27
Table 4: Comparative Institutional Ratios for Primary Reserve, Viability and Debt Burden, 2006 32
Table 5: Comparative Institutional Ratios for Operating Income, Education Core Service, Education Support and General Support, 2006 33

**Chapter 4**
Table 6: Evaluation of Institutional Assessment by Unit 64
Table 7: Exit Surveys, Institutional Strengths, 2000-2006 73
Table 8: Exit Surveys, Institutional Concerns, 2000-2006 73
Table 9: Results from 2005 Alumni Survey 74

**Chapter 5**
Table 10: Geographic Distribution of Incoming Classes, 1997–2006 76
Table 11: Ethnic Distribution of Incoming Classes, 1997–2006 76
Table 12: Gender Distribution of Incoming Classes, 1997–2006 77
Table 13: Summary Table of Key Measure Relative to Association of Independent Technological Universities (AITU), 1997-2007 78
Table 14: Ten-Year Review of High School Grades and SATI Mean Scores, 1997–2007 79
Table 15: Selectivity and Gender Representation in Admissions, 1997–2007 80
Table 16: Students Served at the Center for Writing and Language Arts, Fall 2005–Spring 2006 84
Chapter 6

Table 17: Full-Time Faculty Profile, Fall 2007

Table 18: Changes in Status of Full-Time Faculty, 1998–2007

Table 19: Profile of Proportional and Adjunct Faculty, Fall 2007

Table 20: Student Loads of Full-Time Art Faculty, 2001-2007

Table 21: Student Loads of Full-Time Engineering Faculty, 2001–2007

Table 22: Student Loads of Full-Time Humanities Faculty, 2001–2007

Table 23: Student Loads of Full-Time Architecture Faculty, 2001–2007

Table 24: Teaching Overloads of Full-Time Faculty, 2001–2006

Table 25: Comparison of Average Salaries for Professors, 2002–3 to 2006–7

Table 26: Comparison of Average Salaries for Associate Professors, 2002-3 to 2006-7

Table 27: Comparison of Average Salaries for Assistant Professors, 2002–3 to 2006–7

Table 28: General Education Credit Hour Requirements by Program

Table 29: New Annual Income from School of Art Summer Residency Program, 2003–2007

Chapter 7

Table 30: Matrix of Assessment Methods, The Cooper Union

Table 31: Examples of Assessment and Evaluation at The Cooper Union

Table 32: Career Center Placement Survey, Profile of the Engineering Class of 2007

Table 33: 2005 Alumni Survey Responses:

“To what extent did your Cooper Union education contribute to your professional success?”

Table 34: Competencies meeting All Performance Levels

Table 35: Competencies Meeting Primary Performance Level

Table 36: Competencies Under Performance Level

Table 37: 2005 Alumni Survey, Summary of Competencies:

“To what extent have you developed the following competencies during your education at The Cooper Union?”
Figures

**Chapter 1**

Figure 1  Expense Reduction  10
Figure 2  The Cooper Union FY2002–2012 Operating Budgets  11
Figure 3  Total Revenues and Expenditures, Operating and Non-Operating FY2007–2012  11
Figure 4  Cost per Credit Hour (in dollars)  16

**Chapter 2**

Figure 5  External Affairs Organization Chart  25
Figure 6  Comparative Fundraising Totals (Cash and Pledges Only)*  1994–200 vs. 2001–2007  26
Figure 7  Peter Cooper Heritage Society, Lifetime Giving ≥ $1 Million  28
Figure 8  Benchmark of 2006 Alumni Giving Using AITU Data  29
Figure 9  Annual Fund End of Fiscal Year Comparison 2003–2007  30
Figure 10  Fund Balance 2007–2020 (Excluding Real Estate Investments)  34
Figure 11  Academic Facilities  35

**Chapter 5**

Figure 12  Students Reporting Disabilities, 1996–2006  92

**Chapter 6**

Figure 13  Full-Time Faculty by Rank and Gender, Fall 2007  95
Figure 14  Full-Time Faculty by Race/Ethnicity  96
Figure 15  Full- and Part-Time Faculty by Race/Ethnicity, 2006  96
Figure 16  Fall 2006 Number of Students Taught  98
Figure 17  2005 Alumni Survey: Quality of Faculty  108
Figure 18  2005 Alumni Survey: Access to Faculty  109
Figure 19  Continuing Education Revenue  121

**Chapter 7**

Figure 20  Student Satisfaction Index: Competencies Acquired  164
Chapter 1
Mission, Goals, Planning, Resource Allocation and Institutional Renewal:
Middle States Standards 1 and 2

Through this self-study, as this report will demonstrate, The Cooper Union has undertaken an extensive and inclusive assessment of its mission, examined the efficacy of the academic and administrative strategic plans, and evaluated the stated operational and curricular goals to determine their continued relevance to the education of the architect, artist and engineer as well as the socially prepared citizen in the 21st century. The process has recognized successful programs and identified areas in need of change and redefinition in response to the intellectual and technological demands of contemporary society. The recommendations articulated in this report are the result of a collaborative self-examination undertaken by a cross-section of the faculties and administrative units from all areas and levels of the institution. While the recommendations for future planning, the outcome of these efforts, are at the heart of the accreditation process, the work has also resulted in a renewed sense of community within The Cooper Union. The undertaking was entered into with openness, enthusiasm and, above all, a shared commitment to the importance of “sustaining the mission.” The work necessary for a productive self-study has already proven to be an agent for change.

The results of the self-study are indicated not only in this document, half the length of the last “Periodic Review Report,” but are also anchored in the many unit-level reports, recommendations, conversations, communications and data sets that form the sea-bed for this report.

This first chapter (a) reviews the health of the mission statement, (b) evaluates the results of the last strategic planning effort and (c) provides an overview of the new strategic planning initiative, the direction of which has been informed by this self-study.

THE COOPER UNION’S MISSION

The Cooper Union possesses a clearly stated, compelling, and recently revised statement of mission:

*Through outstanding academic programs in architecture, art and engineering,*
*The Cooper Union for the Advancement of Science and Art prepares talented students to make enlightened contributions to society.*
The College admits undergraduates solely on merit and awards full scholarships to all enrolled students. The institution provides close contact with a distinguished, creative faculty and fosters rigorous, humanistic learning that is enhanced by the process of design and augmented by the urban setting. Founded in 1859 by Peter Cooper, industrialist and philanthropist, The Cooper Union offers public programs for the civic, cultural and practicable enrichment of New York City.

A draft statement of mission had been undergoing refinement since the last Middle States review in 1998 to replace the rather flat statement in the “125+ report,” namely:

That, consistent with the Deed of Trust, Cooper Union will provide the highest quality education in the disciplines of art, design, architecture, engineering, and related studies, to those gifted students who may most benefit from its academic scholarships, location, size, and supportive environment, and, in addition, will offer relevant programs to its various publics.

Final changes before adoption by the Board of Trustees in 2000 included minor changes in language. For example, “gifted students” implied inherent skills as opposed to learned skills and was changed to “talented students.” Additionally, the statement was made more succinct, eliminating unnecessary language.

The Steering Committee notes that the new mission statement is successful to the degree that it identifies the uniqueness of educational environment, stresses a commitment to particular disciplines and approaches and indicates with some specificity the means to achieve or support the stated objectives. The three degree-granting schools are named in the first line and the humanistic emphasis of all learning is recognized appropriately.

The mission statement also conveys that we are unified historically. Everything we purport to do flows from Peter Cooper’s original bequest and example. In the words of the last two Middle States reports, The Cooper Union is unified by “the special legacy of Peter Cooper.” Although no formal instruction in institutional history currently takes place, aside from student orientation, every new student soon becomes aware that Peter Cooper’s benefaction bestows a sense of privilege, distinctiveness and social responsibility. Students in the self-study working groups for the various Middle States standards related that they were more than just thankful for an endowment that allowed for full scholarships; they were also grateful that Peter Cooper provided a model for non-pecuniary ambition. Among other benefits, the full scholarship allows students to think more broadly about the limits and possibilities of a career, as well as the danger in reducing aspiration to the pursuit of cash.
History of the Mission

The Charter and Deed of Trust, passed by the New York State Legislature on April 13, 1859, together with the personal letter from the founder, provide the original statements of mission for The Cooper Union for the Advancement of Science and Art. Although the Charter and Deed still provide the legal frame under which The Cooper Union operates (amended in 1969, 1972 and 1986), the documents reflect primarily the state of popular and scientific education existing in the United States at that time. They are by no means dead letters, yet they do require some interpretive solvent to wipe away some of the antique varnish.

The first point about the Charter is that The Cooper Union was not founded as a college but rather as a public educational institution that was to house many more activities than a lecture hall, classrooms and library might admit. The 1859 Act allowed Peter Cooper to give to a new corporate body a building and land “for the purpose of establishing a public institution in said city for the advancement of science, art, philosophy and letters, for procuring and maintaining scientific and historical collections, collections of chemical and philosophical apparatus, mechanical and artistic models, books, drawings, pictures and statues, and for cultivating other means of instruction.”

Mid-century readers of “Putnam’s” or “Harper’s” monthly magazines would have had a clear understanding of what these words promised. New York City was to have a version, in smaller scale, of the artistic and scientific complexes then being developed under state sponsorship in London or Paris. New Yorkers, however, would be treated to this munificence by a private benefactor, the industrialist and political reformer, Peter Cooper.

Thus the founder endowed a public building, not a particular program. Even before his Institute opened he had been besieged with requests for, and advice about, the use of the space. Art patrons, some of whom went on to establish the Metropolitan Museum of Art, petitioned for a floor. The New-York Historical Society wanted a new home. The American Geographical Society hoped for space for their cabinets and meetings. One group, The New York Female School of Design (1852), was successful in securing space even before the building officially opened, and it was, so to speak, their right as sitting tenants to be included by name in the programmatic features that the Charter actually spells out.

There were five goals specified beyond the general mission statement:

1. To provide free night courses on:
   • The application of science to the useful occupations of life.
   • Social and political science (Cooper was careful here to stress that he did not mean the political economy of the Manchester School, but rather the science of Republican government).
   • Any other branches of knowledge that in the opinion of the Trustees might tend to improve and elevate the working classes of the City of New York.
2. To create a free reading room, art galleries and scientific collections designed to improve and elevate “those classes...whose occupations are such to be calculated... [by the Trustees]...to deprive them of proper recreation and instruction.”

3. To provide and maintain a school for “the instruction of respectable females in the arts of design and indeed in such other art or trade as will tend to furnish them suitable employment.”

4. The establishment and maintenance of a thorough polytechnic school by the Trustees when enough funds were secured or by other bodies willing to set one up beforehand.

5. To organize a society to be called The Associates of The Cooper Union for the Advancement of Science and Art.

It is possible to see within these five objectives, now 150 years old, the seeds of The Cooper Union’s separate Schools of Architecture, Art and Engineering and of the current outreach and public programming, even though to understand their contemporary structure would require a detailed history of each particular path taken. As an introduction to this self-study, however, it is better to look at one word in the founder’s visionary statements that still underwrites our mission: the word “practical” appears five times in the Charter and Deed and thus demands attention. Practical education appears to stand in opposition to what was then taken to be liberal learning. Columbia University still required knowledge of classical literature for admission, and even though it was moving ahead with the enlargement of its School of Mines (at The Cooper Union, Abram Hewitt hoped), the whole tenor of college education was still elitist and religious. The Charter therefore specifies that no religious test can be made of students or faculty. “Practical” thus meant extending and developing contemporary knowledge in a democratic fashion; hence the emphasis on “advancement” in the institution’s title. “Practical” did not mean, as the Trustees frequently reminded the public, the teaching of trade or craft skills.

The Cooper Union’s students, with the exception of the “respectable females” in the Day School of Art, were mostly working. They came at night to learn the fundamentals of science and art and thus to develop problem-solving techniques for work already underway. The aim of a truly practical education was not, therefore, employment as such, but rather independence and innovation in thought. At this point the politics and programs of the institution came into alignment. Having grown up as a radical artisan, Peter Cooper had a personal horror of indebtedness, dependency and private patronage. Cooper believed that competence and independence assured both political stability and material progress.

Practical learning, democratic access and civic improvement: these strands thread their way through the five programs initially projected by the founder and resolve into the three schools and the public programming that The Cooper Union maintains today. In the
twentieth century, within this increasing and complex division of educational labor, and with changes in the structure of the work force, The Cooper Union gradually lost sight of its original objects of benevolence—the working artisan and tradesman (or in case of the Day School of Art, the deserving female). Instead, a new objective, or at least a new phrase, came to the fore: the training of professionals. The education was still as “free as air and water,” and it was also assumed that the working classes and immigrants would remain the primary beneficiary. Yet the training of professionals in engineering and art required an attention to the processes of admission and to the likelihood of graduation and certification that the Charter could not have predicted.

Although it has taken over a century to accomplish, from being perhaps the most relaxed educational institution on the subject of admission, The Cooper Union has become one of the most highly selective. By choosing to remain a full-scholarship institution, through the decades when schools such as MIT, Rice or Worcester Polytechnic Institute began to charge tuition, The Cooper Union determined to remain a small, focused, teaching college. The notion of democratic access was thus encapsulated in its “need blind,” full-scholarship admissions policy. Practical learning is now emphasized in the unique combination of programs in architecture, art and engineering. Civic improvement is to be found in its public and outreach programs and in its continued concern to train ethically vigilant students within the disciplines.

The President’s Vision
One of the hallmarks of President George Campbell Jr.’s tenure since 2000 has been the consistency with which The Cooper Union’s mission has been expressed and broadcast. In addition, his vision of institutional renewal founded on the hopes for the new academic building and securing long term resources by increasing the endowment and improving real estate income has been clear and compelling. Communication by the Office of the President has taken many new forms:

• **President’s State of The Cooper Union.** Each year, the President invites the entire Cooper Union community to the Great Hall where he delivers a presentation on the state of the college, covering all aspects of operations from academic programs to financial projections and capital projects. The presentation includes benchmarking against comparable institutions and serves as a platform to discuss institutional directions, both short and long term.

• **The “President’s Report.”** Since 2001, this publication has been distributed on a biannual basis to faculty staff, students, administration and Trustees. It highlights the institutional achievements of the college within the context of our mission.
• “Cooper Union News” from the President’s Office. An online monthly newsletter posted since 2005 on the college’s website, this publication provides timely information about faculty, student and alumni achievements and noteworthy awards, papers, presentations and exhibitions, in addition to fundraising updates and upcoming events.

• The “Triangle Report.” This report is intended as a vehicle to communicate the campus revitalization plan and provide timely updates on progress of the master plan.

• Faculty Breakfasts. These small gatherings (six to eight faculty members) of the President and the faculty discuss topics of interest to the faculty and areas of curriculum exploration.

• Annual Faculty Reception. This annual event is held at the President’s residence for the entire faculty after the start of a new academic year. The purpose is to welcome the faculty back, introduce new members of the faculty and provide the president with the opportunity to talk about opportunities and challenges.

• Annual Staff and Administration Luncheon. This annual event is held on campus for the entire staff and administration.

• Annual Freshman Orientation. Each year the President addresses the freshman class and their parents or guardians on the importance of The Cooper Union’s mission and history, and highlights the vision for the future of the college.

• Interoffice Memoranda. Since 2000, the Office of the President has written and distributed more than one hundred memoranda to faculty, staff, administration, students and Trustees about information related to structural changes, ongoing improvements, direction for the future, challenges ahead and our commitment to the mission of The Cooper Union.

• The Great Hall. Each year President Campbell introduces numerous programs to the public in the Great Hall, reaffirming both our commitment to Peter Cooper’s mission and the historic role of the Great Hall as a platform for social discourse.

The communication of The Cooper Union’s mission, goals and objectives is also highly consistent in terms of its internal and external releases. The Office of Public Affairs is responsible for the publication of the alumni magazine (“At Cooper Union”), all marketing and fundraising brochures, press releases, the “President’s Newsletter” and the college website. The office also collaborates with the Department of Continuing Education and Public Programs in terms of its publications, as well as with the Office of Admissions and Records on the course catalogue. Public Affairs also works with community groups, especially with regard to the construction of the new academic building, and maintains two pages on the website dedicated to that information: “Cooper in the Community” and “New Academic Building.” (Examples of all printed communications from the Office of the President and from the Office of Public Affairs may be accessed at the Middle States Electronic Resource.)
Current Institutional Goals
The Cooper Union statement of mission offers both a public face for the institution and a focus for internal coherence. It has been used actively in drafting the new strategic plan. However the setting of goals, determined by the mission, has been traditionally the work of the academic and administrative units rather than as an expression at the institutional level. This self-study suggests that the process of setting institution-wide goals would be an aid to further internal coherence and the setting of priorities. The Steering Committee believes that there are five goals that flow directly from the mission statement and that might serve as a starting point for community-wide discussion. These five goals are to:

• Sustain and advance exceptional degree programs in art, architecture and engineering.
• Sustain the founding ethic and practice of full tuition scholarships for all admitted students
• Sustain and advance a committed and distinguished faculty.
• Sustain and advance, within a humanistic learning environment, curricula that promote the principles of design in intellectual, practical and creative endeavors.
• Sustain and advance public programs that serve to enrich the cultural, academic and professional lives of citizens of New York City.

Review of the Previous Strategic Planning Document
Consistent with Middle States standard 2, both self-study and the renewal of strategic planning required the Steering Committee to undertake a review of the goals of the last strategic planning process, which produced the 2001-2006 strategic planning document. The objectives flowing from the stated goals were not, however, expressed in sufficiently observable terms to effect proper detailed assessment. In the opinion of this self-study, the “ownership” of objectives was insufficiently specified; therefore, strategic resource allocation was not demonstrable. Nevertheless, as the next chapter will demonstrate, much success has been achieved, especially in the areas of the capital campaign and in an updated facilities master plan.

Goals of the 2001–2006 Strategic Planning Document
The goals contained in the 2001–2006 strategic planning document are each listed below and followed by our current assessment of their status.

(i) Restructure curriculum, pedagogy, and delivery systems to accommodate paradigm shifts in science and art, rapidly evolving technology and changes in social, political and urban infrastructure on a global scale
Assessment: There have been significant developments in the School of Engineering with the establishment of a new interdisciplinary degree and more elective freedom in the majors. Also the various centers supported by the new C.V. Starr Foundation recognize the kinds of change listed in the goal. The centers are in biomedical engineering; urban systems and infrastructure; materials and manufacturing innovation; signal processing, communications and information processing; and sustainable design. In the School of Architecture there are new emphases on sustainable design and global architecture. Throughout the four faculties there have been increases in the use of electronic media as an extension of classroom and studio practice. Site-specific computer centers have been created in the Schools of Art and Architecture, and there has been a considerable technological enhancement in the capacities to teach film/video, photography and print making. For more on program innovations, see chapter seven of this self-study report. Overall, the Steering Committee evaluated these developments as evolutionary rather than as constituting a “restructuring.”

(ii) **Establish a new Graduate Institute with a focus on interdisciplinary studies to optimize the utilization of intellectual capital at The Cooper Union and to maximize the educational opportunities it offers, while creating a new source of revenue**

Assessment: Although a new graduate institute has been named, the plan for fee-generating graduate programs caused unanticipated problems in the mixing of scholarship and fee-paying students. The M Arch II degree, scheduled to admit students for this coming year, while tuition-based, will secure fellowships for all students.

(iii) **Create greater opportunities for enhanced scholarship, research and professional development for the faculty**

Assessment: This goal from 2001 was a casualty of the severe downturn in the stock market after 9/11. Although some new initiatives came to fruition, such as the third year—one-semester faculty sabbaticals—this goal has had to be carried over into the new strategic plan.

(iv) **Improve the quality of life for students on The Cooper Union’s urban campus**

Assessment: The new academic building will provide improved academic space and social space. The college has recently secured access to a new gymnasium at nearby Grace Church. However, finding innovative ways to support students within an expensive urban setting will remain a challenge over the long term. Although Cooper Union students do not need a “campus,” since the richness of urban culture in the immediate area supplies so much, there are demands for additional housing and the need for more psychological counseling and for on-site medical care.

(v) **Realign the Cooper Union’s Continuing Education and Public Programs with the core academic mission of the institution, creating significant opportunities for professional development, while generating additional revenues to support the college’s degree programs.**
Assessment: The Department of Continuing Education and Public Programs did indeed add successful professional programming as well as generate higher revenues. A more detailed report on the fulfillment of this goal may be found in chapter six of this self-study.

(vi) Provide state-of-the-art facilities for The Cooper Union’s academic programs.

Assessment: When work is completed in 2009, the new academic building and the renovation of the existing Foundation Building is expected to be state-of-the-art in terms of sustainability, technology (building provisioning and computing), and classroom, studio and laboratory design.

(vii) Secure The Cooper Union’s academic mission and its full-tuition scholarship policy by maximizing real estate income and significantly increasing the endowment.

Assessment: The goal here is ongoing, and there is demonstrable progress towards its achievement, as the next chapter on resources indicates.

Although the 2000 planning process was clearly communicated throughout, the finalized draft never received adequate distribution and assent before 9/11 intervened. No one has ever doubted the sincerity and seriousness of the effort involved. However, the swift pace of the process was such that the resulting document has not been viewed by some parties as a sufficiently collaborative endeavor.


Over the last seven years there have been severe constraints upon the budget. Certainly the first years of the twenty-first century at The Cooper Union witnessed an extraordinary dynamic environment. The speed with which The Cooper Union reacted to the calamity of 9/11 and the collapse of the stock market (especially within the high-tech sector, which was over-represented in the college stock portfolio) shows institutional vigor in itself. In addition, the administration moved quickly to capitalize on the rising value of its real estate portfolio to improve future cash flow. As mentioned in the 2003 “Periodic Review Report” and the 2005 “Monitoring Report,” budget cuts were announced for fiscal years 2002–2004. These called for substantial operating reductions, most of which were in administrative areas rather than in academic programs. While discretionary budget reductions of up to 25 percent were proposed, actual overall reductions spread over the three year period amounted to less than 16 percent.

The Cooper Union has achieved lower budgetary shortfalls in four of the last five years, largely as a result of this constrained spending. Planned changes included modest workforce reductions, a faculty hiring freeze, a one-year salary freeze (two years for officers) and elimination of duplicate efforts and non-essential costs. The goal was to implement reductions that bring about strategic shifts, especially by eliminating any obsolescence, and that would ultimately lead to positioning the institution for future growth. The strategic plan was designed to sustain the quality and even improve academic programs by sharpening focus on essentials.
Audited financial statements for fiscal years 2001 to 2006 indicate that overall operating costs were indeed reduced. As shown in Figure 1 below, expenses (in 2006 dollars), adjusted by the Higher Education Price Index (HEPI), declined 15.9 percent over the two-year period. In current dollars, expenses declined from $50.2 million to $42.2 million of that period and have since kept pace with HEPI. In addition to addressing the financial challenge, the budget reductions had the benefit of facilitating the elimination of unnecessary expenses and outdated activities.

The reductions in operating budgets together with the anticipated increases in operating revenues from real estate and endowment promise to erase the operating budget shortfalls (see Figure 2 on the following page). Details on the progress towards this goal are provided in chapter two, following.
Just as significantly, the institution is expected to have overall (operating plus non-operating) positive cash flow beginning in 2008 and thereafter for the foreseeable future. See Figure 3 below.
BUDGET PROCESS

A critical component of success in strategic planning is an effective resource allocation and budget process. Consistent with the expectations of Middle States standards 2 and 3, the annual budget and the resultant resource allocation processes at The Cooper Union begin with an exchange between the Budget Office and the academic and administrative units.

Budget packets and preparation guidelines are distributed immediately before Thanksgiving break and are due back by the end of the Fall semester. It is the Dean's or Director's responsibility to prepare the budget for each school or department with appropriate input from faculty and staff.

The administration's guidelines include the percentage of the current year's budget or the dollar amounts that the new budget proposal cannot exceed. Requests for additional funds must be accompanied by clear documentation of needs. Deans and Directors meet early in the process with Vice President Hawks and, as the budget nears finalization, with President Campbell.

Salaries represent the largest portion of the budget in most schools and departments. Directors and Deans have very limited control over this category since the salaries of the continuing full-time faculty members, librarians and unionized staff members are determined by negotiation between The Cooper Union administration and the respective labor unions. Remaining salary budget covers proportional, adjunct and visiting faculty members, administrators, and non-unionized staff and student workers.

A projection of the amount of funds needed for materials is generally arrived at through a careful analysis of the expenditures of current and prior years for each account in this category. This is a particularly contentious issue in the case of the Library, since the annual percentage increase in costs—from books and subscriptions to electronic resources—often far exceeds the predetermined allowed percentage by which the total budget may rise. Given the relatively flat budget in all areas, increases in a particular area must first be addressed through cuts in other lines wherever possible.

Capital expenditures are not part of the operating budget. However, requests that would fall into this category have to be submitted with the budget proposal. Each Dean or Director compiles a list of capital expenditures anticipated for the coming fiscal year.

The budget packages completed by the Deans and Directors, meetings with Vice-President Hawks and President Campbell, and, once the budget is adopted, regular spending spreadsheets issued by the Business Office provide a feedback loop regarding fiscal accountability. Deans and administrators have some latitude in moving funds from one line to another within a flat budget, but must demonstrate need in all cases with documentation in the course of the annual budgeting process.
Changes to the Budgetary Process
As a result of this self-study and the new strategic planning effort and starting with budget preparation process for fiscal year 2009 that begins in November of 2007, each budgetary unit will be required to link its requested budgets to clearly articulated goals drawn from the new strategic plan. This requirement will apply to both ongoing efforts and new initiatives. Once the budget requests are reviewed and tallied by the Business Office in January 2008, they will be presented to the Academic Council, which will convene in February and in March to deliberate the strategic soundness of the budgets individually and as a whole. The deliberations will result in recommendations to the President, who will then instruct the Business Office on preparing the preliminary budget request for submission to the Board of Trustees in April 2008.

Evidence of Planned Resource Allocation
The net change in institutional costs of 7.17 percent from 2001 to 2006 was below inflation; however, this reflects one-time structural changes. It also reflects temporary fluctuations in employment. Analyses of yearly variations in cost are shown on Tables 1 and 2 below. In looking at these variations it should be noted that the Library’s budget had to accommodate fixed increases in subscriptions. Increases in funds for the Computer Center, Resources and External/Public Affairs reflected the goals of the strategic planning document to increase the use of technology, improve fundraising and raise the public profile. Increases in legal fees relate to the development of the college’s real estate assets.
Table 1
Yearly Variation in Cost, 2001-2006
Analysis of Instruction and Academic Support

<table>
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<tbody>
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<td>Total</td>
<td>1,136,000</td>
<td>-1,340,000</td>
<td>-1,013,000</td>
<td>1,192,000</td>
<td>1,297,000</td>
<td>1,272,000</td>
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<tr>
<td></td>
<td>(6.41%)</td>
<td>(-7.10%)</td>
<td>(-5.78%)</td>
<td>(7.22%)</td>
<td>(7.32%)</td>
<td>(7.17%)</td>
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<td>School of Engineering</td>
<td>1,070,000</td>
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<td>-234,000</td>
<td>691,000</td>
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<td></td>
<td>(17.05%)</td>
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<td>(-3.75%)</td>
<td>(11.49%)</td>
<td>(7.09%)</td>
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<td>School of Art</td>
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<td>260,000</td>
<td>464,000</td>
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<td></td>
<td>(-15.69%)</td>
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<td>(-11.26%)</td>
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<td>School of Architecture</td>
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<td>51,000</td>
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<td></td>
<td>(17.52%)</td>
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<td>Faculty of Humanities</td>
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<td>313,000</td>
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<td>(9.34%)</td>
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<td>Computer Center</td>
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<td>33,000</td>
<td>32,000</td>
<td>-10,000</td>
<td>19,000</td>
<td>45,000</td>
<td>119,000</td>
</tr>
<tr>
<td></td>
<td>(19.64%)</td>
<td>(15.92%)</td>
<td>(-4.29%)</td>
<td>(8.52%)</td>
<td>(18.60%)</td>
<td>(70.83%)</td>
</tr>
<tr>
<td>Lubalin Center</td>
<td>35,000</td>
<td>24,000</td>
<td>-143,000</td>
<td>-8,000</td>
<td>-51,000</td>
<td>-143,000</td>
</tr>
<tr>
<td></td>
<td>(15.28%)</td>
<td>(9.09%)</td>
<td>(-49.64%)</td>
<td>(-5.52%)</td>
<td>(-37.23%)</td>
<td>(-62.43%)</td>
</tr>
</tbody>
</table>

Note: Charts shown in this table and throughout this section do not include overhead and therefore can be misleading.
### Table 2

#### Yearly Variation in Cost, 2001-2006

#### Analysis of Institutional Support

<table>
<thead>
<tr>
<th></th>
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<tr>
<td><strong>Total</strong></td>
<td>143,000</td>
<td>-278,000</td>
<td>-86,000</td>
<td>415,000</td>
<td>826,000</td>
<td>1,020,000</td>
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<tr>
<td></td>
<td>(2.02%)</td>
<td>(-3.84%)</td>
<td>(-1.24%)</td>
<td>(6.04%)</td>
<td>(11.34%)</td>
<td>(14.39%)</td>
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<td><strong>Office of the</strong></td>
<td>-254,000</td>
<td>-142,000</td>
<td>18,000</td>
<td>43,000</td>
<td>140,000</td>
<td>-195,000</td>
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<td>President**</td>
<td>(-23.52%)</td>
<td>(-17.19%)</td>
<td>(2.63%)</td>
<td>(6.13%)</td>
<td>(18.79%)</td>
<td>(-18.06%)</td>
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<td><strong>Business Office</strong></td>
<td>140,000</td>
<td>71,000</td>
<td>1,000</td>
<td>-68,000</td>
<td>163,000</td>
<td>307,000</td>
</tr>
<tr>
<td></td>
<td>(8.96%)</td>
<td>(4.17%)</td>
<td>(0.06%)</td>
<td>(-3.83%)</td>
<td>(9.55%)</td>
<td>(19.64%)</td>
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<td><strong>Auditing and</strong></td>
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<td>205,000</td>
<td>-137,000</td>
<td>-25,000</td>
<td>254,000</td>
<td>143,000</td>
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<tr>
<td>Legal fees**</td>
<td>(-33.62%)</td>
<td>(67.43%)</td>
<td>(-26.92%)</td>
<td>(-6.72%)</td>
<td>(73.20%)</td>
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<td><strong>External/ Alumni</strong></td>
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<td>-68,000</td>
<td>243,000</td>
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</tr>
<tr>
<td>Affairs**</td>
<td>(-1.08%)</td>
<td>(1.58%)</td>
<td>(-8.15%)</td>
<td>(31.72%)</td>
<td>(4.86%)</td>
<td>(27.47%)</td>
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<tr>
<td><strong>General Expense (b)</strong></td>
<td>256,000</td>
<td>-532,000</td>
<td>139,000</td>
<td>297,000</td>
<td>70,000</td>
<td>230,000</td>
</tr>
<tr>
<td></td>
<td>(19.53%)</td>
<td>(-33.95%)</td>
<td>(13.43%)</td>
<td>(25.30%)</td>
<td>(4.76%)</td>
<td>(17.54%)</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>309,000</td>
<td>92,000</td>
<td>-59,000</td>
<td>-86,000</td>
<td>96,000</td>
<td>352,000</td>
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<tr>
<td></td>
<td>(30.26%)</td>
<td>(6.92%)</td>
<td>(-4.15%)</td>
<td>(-6.31%)</td>
<td>(7.52%)</td>
<td>(34.48%)</td>
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<tr>
<td><strong>Public Affairs</strong></td>
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<td>7,000</td>
<td>18,000</td>
<td>-4,000</td>
<td>66,000</td>
<td>149,000</td>
</tr>
<tr>
<td></td>
<td>(10.62%)</td>
<td>(1.08%)</td>
<td>(2.76%)</td>
<td>(-0.60%)</td>
<td>(9.90%)</td>
<td>(25.51%)</td>
</tr>
<tr>
<td><strong>Other Expenses (c)</strong></td>
<td>-206,000</td>
<td>8,000</td>
<td>2,000</td>
<td>15,000</td>
<td>-13,000</td>
<td>-194,000</td>
</tr>
<tr>
<td></td>
<td>(-85.83%)</td>
<td>(23.53%)</td>
<td>(4.76%)</td>
<td>(34.09%)</td>
<td>(-22.03%)</td>
<td>(-80.83%)</td>
</tr>
</tbody>
</table>

Note: Each cell consists of two figures. The first figure is the difference between the costs of the two years (in dollars) and the second one, in parenthesis, is the percentage difference between the two years. A negative cost difference/percentage indicates a decrease in the cost.
Trends in Instructional Costs
In order to see more detailed trends in instructional costs, the following graph (Figure 4) was prepared using the financial data (including depreciation and accruals) in actual dollars by student credit hour.

Figure 4
Cost per Credit Hour
(in dollars)

The above graph illustrates that instructional costs have remained remarkably flat given the general high inflationary rate in higher education. Most academic unit costs are still below the 2002 mark. The higher cost of instruction in the School of Architecture is primarily a matter of a low economy of scale with administrative and fixed costs distributed over 141 students. It is also determined both by the team-teaching pedagogy within the design studios and by the relatively higher rates of remuneration given to adjunct and proportional instructors. Likewise, the low cost of instruction in humanities and social sciences is a function of the high number of student credit hours in relation to fixed instructional and administrative costs. For the next year’s budget cycle, these rough indices of “productivity” by major will be benchmarked using data from the “Delaware Study” of instructional costs.
WORKING TOWARDS A STRATEGIC PLAN

The President announced a new strategic planning initiative in Fall 2006, shortly after the self-study process had begun. All budgetary units were asked to prepare “portfolios” of aims and wishes with estimates of budgetary impact. Since these units had already supplied updated statements of mission and goals, together with accounts and evidence of assessment practices to answer the requirement of the self-study, the kinds of thinking and protocols necessary for successful planning were already falling into place.

To assure greater alignment, the new Dean of Humanities, William Germano, designated one of the leaders in the design of the strategic plan, and the Chair of the Steering Committee, Peter Buckley, attended the joint Middle States-Society for College and University Planning strategic planning workshop in February 2007.

In January 2007, a meeting took place between the President and the Steering Committee of this self-study to ensure that the planning initiative was sufficiently aligned with Middle States expectations. A number of written communications between the Office of the President and the Steering Committee contributed to the setting of initial strategic goals and to a specificity of agency and resource allocation. (Appendix 1:1, letters from Steering Committee.)

A draft plan, containing eight goals, was reviewed in an extended meeting of the Academic Council and the Steering Committee in April 2007. (Appendix 1:2, draft strategic plan, dated May 7, 2007.) Constituent input followed once the draft had been posted on the website; further work over the summer led to a reduction in the number of goals and a clarification of priorities. The four resulting strategic goals are reviewed in chapter four of this report in compliance with Middle States standard 7.

The new strategic plan continues the emphases established with the 2001 plan and was built upon its earlier statements of vision and values, but with more measurable goals. The 2007 plan is more specific about resource allocation and agency.

The planning processes at The Cooper Union are continuous and systematic to the extent that they are changing to meet higher standards of budgetary specificity and ownership. The Steering Committee believes that the mission of The Cooper Union is sound and that its strategic planning efforts are well focused on aiding that mission. A dramatic change in size, in program offerings or in the student profile is neither desirable nor possible. Most planning is directed towards sustaining, as it were, a “steady state” in the size and character of the academic programming, but with a constant eye on program improvement.
The Cooper Union’s greatest challenge remains to find adequate sources of funding to sustain a level of excellence in undergraduate programs in art, architecture and engineering within the full scholarship model demanded by the mission. A scarcity of resources requires focused attention on the goals and objectives of the strategic plan and on the resource allocation necessary to fulfill them.

**Suggestions and Recommendations**
This self-study:

* Suggests* the creation of clearly expressed long term institutional goals within two years.

* Suggests* continued detailed attention, via a new planning and assessment council, to the issues and processes of resource allocation, particularly the alignment of resource allocation with the strategic planning process and the results of its assessment (see also chapter four).
Chapter 2

Institutional Resources: Middle States Standard 3

The mission of The Cooper Union is clear and compelling and has the assent of the entire Cooper community. The full tuition scholarship principle, the mix of disciplines represented by its schools and the long history of public service underwrite the institution’s unique position in higher education. The question addressed directly by this self-study, and the one explored “with emphasis,” is whether The Cooper Union has the resources to undertake and to continue its mission.

This chapter analyzes the four major resource areas vital to the institution’s present operations and future prospects: financial, physical, technological and human.

FINANCIAL RESOURCES

Consistent with the expectations for planning and resource allocation in Middle States standards 2 and 3, The Cooper Union’s Vice President for Business Affairs and Treasurer, Robert Hawks, prepares annual operating and capital budgets. There are periodic updates to these budgets for review by the Board of Trustees—no less than five times a year.

The Cooper Union also produces a five-year strategic financial plan, including projected revenue growth, and these targets tie to the strategic plan. There is also a longer term financial master plan that is the focus of this section. These reports and their supporting documentation are available in the Document Room and on the website.

Middle States has expressed particular interest in The Cooper Union’s financial condition, and that interest occasioned a monitoring report in 2005. Tight budgets have been the rule throughout this decade; thrift will remain a way of life at The Cooper Union for the foreseeable future, especially since the full tuition scholarship model has never allowed the institution to increase revenue by enrolling more students.

After the last Middle States visit, The Cooper Union entered a new period of strategic planning and began serious preparations for the new academic building and the capital campaign. “The Cooper Center Planning Framework” (1998) envisioned the redevelopment of The Cooper Union’s properties around Astor Place and initiated the lengthy process of rezoning. For the years 2009–2012, The Cooper Union looks forward to moving towards a balanced budget (2008), opening of the new academic building (2009), its sesquicentennial (2009) and the successful completion of the capital campaign (2012).
In the last five years, The Cooper Union has realized these financial accomplishments:

- Ongoing success of the largest capital campaign in The Cooper Union's history.
- Successfully renegotiated lease for the Chrysler building that includes resets to the ground rent at 2018 ($32.5 million), 2028 ($41 million) and 2038 ($55 million).
- Completed a $175 million securitization of the Chrysler Building.
- Received five unqualified-opinion audits reports.
- Negotiated a long-term lease of the 26 Astor place site with an upfront payment of $11 million and annual rents projected at $2 million until 2011 and $1 million thereafter (in 2007 dollars) and divested several small properties at $20 million.
- Settled a challenge to the tax equivalency payments from the 51 Astor and 26 Astor Place sites.
- Negotiated a long-term lease of 51 Astor Place with an upfront payment of $96.7 million and tax equivalency payments of some $2 million to begin in 2011.

Gratifying as these accomplishments are for The Cooper Union, the following financial strategic challenges remain while maintaining the full-tuition scholarship policy:

- Achieving a further sustainable 5 percent cost reduction by 2011.
- Containing the rising costs of the self-insured medical plan.

Since undergraduate tuition is not a revenue option for The Cooper Union and because providing professional education of the highest quality in three design disciplines is costly, The Cooper Union implemented in 2001 a financial master plan that included an expense-reduction initiative, an expansion in annual giving, the launch of a major capital campaign, and the programmatic maximization of the yield from its real estate assets. The future of the institution depends on the viability of this long-term approach, which has remained consistent since its inception. In 2005, the institution's financial master plan for 2001-2011 was summarized by President Campbell and the Board of Trustees in the following manner:

- Develop real estate assets.
- Launch the capital campaign (which left its “quiet phase” and entered its public phase in 2006).
- Increase annual giving.
- Reduce expenses and cut the deficit.
- Increase endowment.
- Build a sustainable financial infrastructure.

Each of these efforts is well underway, and substantial progress is both qualitatively evident and quantitatively measurable.
Real Estate Asset Development
The Cooper Union has made great strides in maximizing its real estate assets, which throughout the college’s history have been a significant source of support. For decades, the investment portfolio and real estate assets Peter Cooper and other nineteenth-century industrialists (Abram Hewitt, J. P. Morgan and Andrew Carnegie) helped to assemble, generated—along with commercial activities like the retail shops in the Foundation Building—the income needed by the college. As increases in the cost of higher education have grown, the college must achieve greater return on its real estate holdings to remain financially stable.

The Cooper Union’s real estate properties can be of even greater value in the future because of the special financial and legal character of these assets. The revenue from these holdings is considerably less volatile than typical real estate portfolios because of long-term lease commitments and a unique statutory commitment from the State of New York that permits the college to collect, in effect, the property taxes from leaseholders of its three major commercial properties. Because of the latter, “rental” revenues from real estate operations are substantially enhanced by “tax equivalency payments.”

Revenue from the Chrysler Building—the college’s single largest asset—includes both the tax equivalency payments and ordinary rental income from the tenant Tishman Speyer. In 2004, total revenue from the Chrysler Building amounted to $17.1 million; a year later, $17.8 million. The Cooper Union anticipates that based on contractual obligations, by 2018, total annual revenue from the Chrysler Building will reach $48.6 million.

The master plan’s real estate program includes construction of three new buildings:
• The first project, which was completed two years ago, is a 22-story residential building constructed by The Related Companies on college-owned land at 26 Astor Place, between Fourth Avenue and Lafayette Street, for which The Cooper Union received a one-time payment of $11 million. The building also yields annual rents of approximately $2 million until 2011 and $1 million thereafter (in 2007 dollars).
• The second project is a new academic building to house the Albert Nerken School of Engineering and the Faculty of Humanities and Social Sciences as well as provide additional space for the Irwin S. Chanin School of Architecture and the School of Art.
• Once the Albert Nerken School of Engineering has moved into the new academic building in Spring 2009, The Cooper Union will turn over the current engineering building site at 51 Astor Place between Third and Fourth Avenues to a developer for design and construction of a 14-story, mixed-use, commercial facility with the possibility of space for the college as well. At the time of the “Periodic Review Report” (2003), the new building on that site was “expected to yield a one-time long-term lease payment of approximately $25 million and operating revenue on the order of $2.5 million annually....” Demand for real estate in the
Cooper Square area has increased the value of the long-term lease payment for 51 Astor Place to $96.7 million. Cooper Union has a non-refundable deposit of $15 million on this lease and expects to add the remaining $82.7 million to its investment pool by fiscal year 2008. This development will yield an additional $2.0 million on annual real estate tax equivalency payments by 2011.

The Capital Campaign
In 2001, the college began the Campaign for Cooper Union with an ambitious $250 million goal. As of May 2007, the campaign is on track to achieve $150 million by the close of this year and to add another $100 million, largely to the endowment through bequests and other planned gifts through 2012.

Endowment and Debt
The Cooper Union Board of Trustees has the ultimate responsibility for the management of the college’s endowment. The college employs Cambridge Associates as investment advisors. Cambridge is recognized as a highly capable investment advisor, particularly among academic institutions.

For purposes of diversification, Cambridge identifies multiple external investment managers to handle any one of a number of the college’s funds. Cambridge monitors these managers’ policies and the results of their investments and reports quarterly to the Board of Trustees through the Trustees’ Investment Committee. Cambridge is also in periodic contact with the committee, gathering information during each quarter in preparation of its report to the Board. The committee has oversight responsibility for ensuring that the investment mix chosen by Cambridge Associates is correct. (Appendix 2:1, current Cambridge Associates report.)

Endowment gifts received by The Cooper Union are used to purchase investments to ensure that an adequate rate of return can be earned on the gift. The income and gains earned on the gift should be adequate to carry out the donor stipulations for the spending of the income and gains. As for most other educational and non-profit institutions, the securities are not accounted for separately by each gift but are pooled together to help the institution manage the investments.

Although the investments are pooled, each gift is still accounted for separately in terms of the book value; market value; interest and dividends earned, realized and unrealized gains and losses; and gains withdrawn.

The Cooper Union follows the spending rule that most college and universities follow to determine how much dividend, interest, and realized and unrealized gains and losses should be released for expenditure to meet donor stipulations. The college uses a 5 percent spending rule. The amount is determined by taking 5 percent of the rolling average of the prior three years’ market values, skipping the immediately preceding year.
As policy, the college does not permit the value of endowment funds to fall below the corpus of the original gift. When such funds temporarily fall below their historical value, the loss is absorbed by unrestricted funds. The fact that the bulk of The Cooper Union's endowment remains in real estate, with contractually guaranteed returns, permits an aggressive strategy for our securities, which paid off handsomely through the 1990s, although this was not the case during the early 2000s. In late 2006, using as collateral expected revenues from the Chrysler Building, The Cooper Union borrowed $175 million.

Of the $175 million, $115 million is being used toward facilities renewal (the new academic building and improvements to the Foundation Building and other facilities). Combined with $45 million in cash and pledges raised, this provides a total of $160 million toward facilities renewal. Another $28 million of the borrowed funds have gone to defease the outstanding bonds of the Dormitory Authority of the State of New York that financed construction of the preservation of the Foundation Building's exterior envelope. The remaining $32 million has been added to The Cooper Union's investment pool. Money earmarked for the new academic building but not yet expended is invested separately for a return of approximately 5 percent per year for the next four years. The Cooper Union will pay only interest on the loan for the first 12 years until 2018 when amortization payments will begin and continue for the remaining 18 year period. The loan, i.e., securitization of part of the Chrysler Building, is part of the overall, integrated strategy to manage assets more effectively, diversify the portfolios of investments and generate additional cash flow to cover annual expenses.

Also in fiscal year 2018, according to the renegotiated lease agreement, rental payments to The Cooper Union from the Chrysler Building will increase from approximately $10 million per year to $32.5 million per year. The loan is amortized for a period of 18 years, until 2036. During this time, another step-up in Chrysler Building revenues will occur in fiscal year 2028, when rent payments increase to $41 million per year. A subsequent increase to $55 million per year is to occur in 2038, at roughly the same time the loan is finally retired. This does not include the Chrysler Building tax equivalency payments, which are projected conservatively to rise from $13.5 million in 2007 to $21.5 million in 2028. (See Appendix 2:2, “Financial Report, Summary for Board of Trustees, March 6-7, 2007.”)

As of June 30, 2007, the end of the last fiscal year, as shown in the audited Financial Statements, the endowment was $601 million, one of the largest per student endowments in the nation. This represents a phenomenal recovery from the low of $138 million at the end of fiscal year 2002.
Fundraising
As the above discussion of financial resources makes clear, revenue generation from real
estate and non-real estate investments is a vital part of The Cooper Union's future financial
health. This section addresses The Cooper Union's fundraising capacities and the progress
of its capital campaign. Full documentation related to fundraising capacity and projections
is available on the website and in the Document Room.

The Campaign for Cooper Union
As noted in The Cooper Union's “Middle States Periodic Review” report of 2003, with the
advent of a new administration at the college in 2000, both the structure and the function of
the External Affairs Department were revitalized. Defining itself as a service organization
with multiple constituencies inside as well as outside the College, External Affairs contributed
to the 2000-2001 institution-wide strategic planning process by constructing its own plan
around a sharply focused mission: developing the relationships, recognition and financial
resources that are crucial to supporting the academic and social goals of the institution. Each
member of the External Affairs staff conducted informal interviews with his or her “clients,”
developing a definition of personal mission relative to that of the department and the
institution and participating in an analysis of the skills and organizational structures needed
to support superior performance. The organization of External Affairs now comprises five
departments: Major Gifts and Alumni Campaign, Institutional Giving, Public Affairs, Alumni
Relations, and Continuing Education and Public Programs. The structure maximizes the
talents of a small staff, leverages resources, concentrates expertise and facilitates coordination
and quality control (see Figure 5, External Affairs Organization Chart on the following page).
Nowhere is this more critical than in the college's fundraising operations.

As an institution that receives little income from its core educational activities, The Cooper
Union is even more reliant on fundraising as a source of revenues than other colleges and
universities. Yet the institution's activities in fundraising throughout the latter half of the
1990s were considerably less intense than those of schools with far less need. Implementing
a far-reaching development plan in the summer of 2000—in the context of a comprehensive
capital campaign—The Cooper Union has made great progress as a fundraising organization.
In the seventh year of its ambitious 12-year Campaign for Cooper Union, the college has reached 60 percent of the $250 million goal, bringing the total raised by the campaign to $148.5 million, which includes commitments to its new academic building fund of almost $50 million. The increased rate of giving yielded cash receipts of more than $21 million in fiscal year 2007, breaking the $20 million cash receipts mark for the third time in The Cooper Union’s history, all occurring during the current campaign. The magnitude of growth in the college’s fundraising is illustrated in Figure 6 below, which documents comparative fundraising totals for fiscal years 1994–2000 and fiscal years 2001–2007.

The college laid the groundwork for its campaign by engaging the Oram Group—a fundraising consultancy with particular expertise and success in working with relatively small, underfunded institutions—as campaign counsel. With Oram, The Cooper Union conducted a planning study for the campaign, establishing a two-phase campaign to run concurrently: a first phase with a six-year goal of $150 million for capital and short term operating/academic funds, and a second phase, a 12-year goal of $100 million to enrich the endowment, largely through estate gifts, which take significant time to mature. Structured as planning research rather than a “feasibility” study, the work undergirding the campaign assessed The Cooper Union’s universe of alumni, existing donors and potential donors, and established a strategy to meet the college’s need as defined by the Business Office and the Finance Committee of the Board of Trustees. Table 3 below shows major gifts received (equal to or greater than $25,000) for the first phase of the campaign and includes performance to date.
To achieve the goals, External Affairs and its three development offices—Major Gifts, Institutional Giving and Alumni Relations, which has responsibility for the Annual Fund—put in place a donor cultivation plan that began at the top of the institution, working with the Office of the President to expand and enhance the Board of Trustees to add fundraising capacity; to introduce a President’s Council that would provide access to the social, cultural and financial institutions of the city while serving as a testing ground for future board members; and to develop advisory groups in such fields as real estate and finance to extend the expertise available to the college and create inroads for fundraising. Recognizing that gifts of seven figures and more require a cultivation period of five to seven years, The Cooper Union began in 2000 to develop, and continues to maintain, a roster of approximately 150 major gift prospects in active cultivation.

Side-by-side with cultivating potential supporters, The Cooper Union has placed an enhanced focus on building a culture of donor recognition and engagement. The Peter Cooper Heritage Society was created to honor donors whose lifetime giving has reached $1 million, the Sarah Bedell Cooper Society for lifetime giving reaching $500,000 and the Abram S. Hewitt Society for lifetime giving reaching $250,000. This year, the development structure will add a new society for donors whose lifetime giving has reached $100,000. Figure 7, below, provides a look at the growth of membership in the Peter Cooper Heritage Society since 1980 and demonstrates the increased intensity of current strategies.
Looking toward the second phase of the campaign, the college also created a significantly more active planned giving program and now has a robust pipeline for future income with documented bequest expectancies that total in excess of $34 million, along with an expanded portfolio of life income gifts. To recognize the generosity of these donors during their lifetimes, The Cooper Union created the Society of 1859, which celebrates supporters who have made an enduring gift—deferred gifts, planned bequests and major gifts to the endowment—to The Cooper Union.

In fiscal year 2007, as the college passed the half-way mark in campaign contributions, External Affairs opened the public phase of the Campaign for Cooper Union, beginning to work with alumni and friends on a much broader scale, reaching out to those with capacity on the foundational levels of the donor pyramid. Two events allowed us to leave the campaign’s quiet phase with great fanfare: The Cooper Union secured the second $10 million dollar gift in its history (the first was the individual leadership gift that launched the campaign), this one from the Starr Foundation, dedicated to facilities, equipment, a professorship and scholarships; and the groundbreaking ceremonies for the college’s new academic building. From that core, development spiraled outward creating and implementing a new set of fundraising initiatives—complete with brochures, renderings and promotional activities—to engage the full Cooper Union alumni community in supporting the new academic building. Built around naming opportunities in the building are two nascent mini-campaigns, a $3 million Alumni Roof Terrace Campaign, which has brought in more than $850,000 from just over 100 alumni since December 2006, and a newly launched Alumni on Wall Street Campaign with a goal of $1 million.
Because The Cooper Union has a body of living alumni that is relatively small, only 12,000 strong and—consisting of artists, architects and engineers—also not particularly wealthy, it was crucial that the college join the legions of institutions that use benefit events to add to their development totals as well as their visibility, especially in New York City. In 2002, The Cooper Union restructured two existing, occasional fundraising dinners, Builder of the City and Artist of the City, creating one annual awards gala: the Urban Visionaries Benefit and Silent Auction. Well representing The Cooper Union’s mission with awards for achievements in the visual arts, architecture and engineering as well as for urban citizenship and emerging talent, the inaugural silent auction and dinner, held in 2002, brought in $400,000; the fifth annual event, just completed—this one in donated space at 7 World Trade Center—was attended by more than 400 people who bid on 46 donated works of art, including pieces by Marlene Dumas, Richard Meier, Alex Katz, R.B. Kitaj and Yoko Ono, and earned revenues of more than $800,000 for the second year running. Figure 8 below compares 2006 giving by Cooper Union alumni compared to that of alumni of other institutions belonging to the Association of Independent Technological Universities (AITU).

Figure 8

Benchmark of 2006 Alumni Giving Using AITU Data
Total Alumni Giving (%), 2006
Like Urban Visionaries, which raises funds to support the college’s full-tuition scholarship policy, the Annual Fund also is a crucial source of unrestricted contributions. This year for the first time, the Alumni Relations staff branded the 2007 Annual Fund campaign with the theme, “You Are Cooper Union’s Foundation.” With a newly activated Annual Fund committee, a strengthened Parents Council and the full commitment of the Board of Trustees (this year the college achieved 100 percent participation of the Trustees in both the Annual Fund and the Building Fund) the Annual Fund exceeded all previous Phonathon records: 120 volunteers raised $455,000, a 15 percent increase over fiscal year 2006, brought in the largest senior class gift ever and finished the year with more than $2.7 million, more than $100,000 in excess of its $2.6 million goal. See Figure 9 below.

In 2006, The Cooper Union won the “CASE-Wealth ID Award for Educational Fund Raising” in the Overall Performance category. Given by the Council for the Advancement and Support of Education (CASE), the award honors best practices in fundraising. It cannot be applied for and is conferred based on a detailed analysis of fundraising results over a three-year period, as documented in the annual “Voluntary Support of Education” surveys conducted by the Council for Aid to Education (CAE). An expert panel of volunteer judges uses the survey data to determine winners in two categories: overall fundraising performance and overall fundraising improvement. According to CASE materials, “Institutions that gain recognition for performance have mature, well-maintained fund-raising programs and a broad base of contributors.”
Other Revenues
The Cooper Union's revenue stream is realistically revised from those described in the 2003 “Periodic Review Report,” which optimistically included “the development of new graduate programs that would generate revenues.” No such revenues are included in the projections now developed by the Business Office, and the administration of the School of Architecture has stated that its new Master’s program is expected to be very small and will offer fellowships to all students initially. Estimates of Annual Giving and capital campaign contributions used in the March 2007 “Financial Report Summary” have been revised since the “Periodic Review Report.” The totals are approximately the same, but the recent estimates offer a somewhat different distribution of gifts by category.

An ongoing concern in the past has been the possibility of a loss of The Cooper Union’s tax equivalency payments. Although repeatedly contested since the 1930s, the institution’s equivalency payments on the Chrysler Building have been consistently upheld by the courts. Such payments have been more successfully challenged on other properties. The Cooper Union has built into its financial planning a likely compromise with New York City on 26 Astor Place and 51 Astor Place: the institution expects to get 50 percent of tax equivalency income for those properties beginning in 2012. The compromise includes an agreement by New York City to accept in perpetuity the tax exemption on the Chrysler Building, forgoing any future challenges.

Despite the volatility of expenses for utilities, legal fees and health care, The Cooper Union has been remarkably accurate in its financial projections. Vice President Hawks has stated that on an overall budget of $43.7 million in fiscal year 2006, projected expenditures were off by just $287,000. In sum, revenue from the new residential and commercial buildings, income from the college-owned Chrysler Building and an enlarged investment portfolio is expected to generate the kind of stable, secure income stream that other institutions receive from tuition.
Strategic Financial Assessment

The Cooper Union, in common with many other colleges, uses ratios as strategic indicators of general financial health. The ratios are described below the following benchmarked Tables 4 and 5.

Table 4
Comparative Institutional Ratios for Primary Reserve, Viability and Debt Burden, 2006

<table>
<thead>
<tr>
<th>Institution</th>
<th>Primary Reserve Ratio</th>
<th>Viability Ratio</th>
<th>Debt Burden Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York University</td>
<td>0.45</td>
<td>0.89</td>
<td>4.00%</td>
</tr>
<tr>
<td>Fordham University</td>
<td>0.71</td>
<td>1.24</td>
<td>25.90%</td>
</tr>
<tr>
<td>St. John's University</td>
<td>0.69</td>
<td>0.61</td>
<td>7.50%</td>
</tr>
<tr>
<td>Hofstra University</td>
<td>0.54</td>
<td>0.94</td>
<td>5.00%</td>
</tr>
<tr>
<td>Teachers College, Columbia University</td>
<td>0.82</td>
<td>1.46</td>
<td>4.00%</td>
</tr>
<tr>
<td>Syracuse University</td>
<td>1.31</td>
<td>6.22</td>
<td>0.80%</td>
</tr>
<tr>
<td>Harvard University</td>
<td>9.12</td>
<td>9.66</td>
<td>16.30%</td>
</tr>
<tr>
<td>Pratt Institute</td>
<td>0.51</td>
<td>0.99</td>
<td>6.40%</td>
</tr>
<tr>
<td><strong>The Cooper Union 2005</strong></td>
<td><strong>5.44</strong></td>
<td><strong>8.92</strong></td>
<td><strong>5.70%</strong></td>
</tr>
<tr>
<td><strong>The Cooper Union 2006</strong></td>
<td><strong>9.48</strong></td>
<td><strong>16.90</strong></td>
<td><strong>5.30%</strong></td>
</tr>
</tbody>
</table>

* All data are for 2006 except The Cooper Union data for 2005

Notes:

- **Primary ratio** = Total Expendable Net Assets / Total expenses. A ratio of >.4 is considered good for an institution.

- **Viability ratio** = expendable net assets / long term debt. This ratio demonstrates the extent to which the availability of expendable net assets to cover debt should The Cooper Union need to settle its obligations as of the balance sheet date. This ratio should fall between 1.25x and 2.00x, and higher for the strongest creditworthy institutions.

- **Debt burden ratio** = debt service payments / total expenses. This ratio examines The Cooper Union’s dependence on borrowed funds as a source of financing its mission and the relative cost of borrowing to overall expenditures. An upper threshold of 7% is considered good.
## Table 5

**Comparative Institutional Ratios for Operating Income, Education Core Service, Education Support and General Support, 2006**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Operating Income Ratio†</th>
<th>Education Core Service Ratio†</th>
<th>Education Support Ratio†</th>
<th>General Support Ratio†</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York University</td>
<td>97.1%</td>
<td>89.0%</td>
<td>8.0%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Fordham University</td>
<td>98.9%</td>
<td>52.0%</td>
<td>32.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>St. John's University</td>
<td>92.9%</td>
<td>49.0%</td>
<td>30.0%</td>
<td>28.0%</td>
</tr>
<tr>
<td>Hofstra University</td>
<td>98.6%</td>
<td>58.0%</td>
<td>20.0%</td>
<td>23.0%</td>
</tr>
<tr>
<td>Teachers College, Columbia University</td>
<td>86.6%</td>
<td>78.0%</td>
<td>20.0%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Syracuse University</td>
<td>87.7%</td>
<td>72.0%</td>
<td>27.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Harvard University</td>
<td>46.6%</td>
<td>122.0%</td>
<td>45.0%</td>
<td>40.0%</td>
</tr>
<tr>
<td>Pratt Institute</td>
<td>98.6%</td>
<td>55.0%</td>
<td>23.0%</td>
<td>24.0%</td>
</tr>
<tr>
<td><strong>The Cooper Union- 2005</strong></td>
<td><strong>81.0%</strong></td>
<td><strong>50.3%</strong></td>
<td><strong>39.8%</strong></td>
<td><strong>15.5%</strong></td>
</tr>
<tr>
<td><strong>The Cooper Union- 2006</strong></td>
<td><strong>75.2%</strong></td>
<td><strong>55.2%</strong></td>
<td><strong>41.8%</strong></td>
<td><strong>17.3%</strong></td>
</tr>
</tbody>
</table>

* All data are for 2006 except The Cooper Union data for 2005

† Since The Cooper Union does not charge tuition, a significant component of its revenues is non-operating

### Notes:

- Operating income ratio = operating revenue/operating expenses. This ratio demonstrates extent to which current year operating revenues have contributed to the overall financing of The Cooper Union’s operations. This ratio should be viewed in terms of an institution’s trend analysis: the higher the ratio, the greater the institution has been able to fund current year’s expenditures out of operating revenues.

- Education core service ratio = education core service expense/operating income. This ratio analyzes whether core services are using a growing or dwindling share of The Cooper Union’s operating income. Core services are defined as functional categories of expense directly linked to the core mission of The Cooper Union.

- Education support ratio = educational support expenses / operating income. This ratio analyzes whether educational support services are using a growing or dwindling share of The Cooper Union’s operating income. Support services are defined as the functional categories of expenses that are ancillary, but directly related to the mission of The Cooper Union.

- General support ratio = general support expenses / operating income. This ratio analyzes whether general support services are using a growing or dwindling share of The Cooper Union’s operating income. These last three ratios are not conducive to benchmarking since institution’s missions differ; however the program services (program/total expenditures) and supporting services (support/total expenditures) are usually in the range of 65% and 35% respectively. In this regard The Cooper Union’s ratios for 2002-2006 compare favorably as the program service ratio ranged from 75 to 80% and the supporting services ratio ranged from 19 to 25%.

The results of the comprehensive financial model used to project The Cooper Union’s fund balance, which takes into account all uses of cash and all sources of revenues, are shown below in Figure 10 for years 2007–2020. In addition, real estate investments are expected to exceed $900 million in 2020.
PHYSICAL RESOURCES

Physical Planning
The Cooper Union is currently in a period of rapid and substantial transition in regard to its facilities. One of the three main educational buildings, the Hewitt Building, has been demolished to allow for the construction of the new academic building. When the new academic building is completed in 2009, the entire School of Engineering, the Faculty of Humanities and Social Sciences, some School of Art functions, including studio classrooms and individual studios and other residents of the Nerken Engineering Building at 51 Astor Place will move into it. The Engineering Building will also be demolished to allow for new commercial construction. Classrooms and technology-intensive facilities, the auditorium, gallery and other common spaces will be used by all academic divisions. The construction activity has placed a temporary burden on all of the departments within The Cooper Union. Each department is dealing with different strains on their space and facility needs. Some of these temporary issues seem to be clearly addressed by the move into the new academic building, while others remain lingering questions. Both the Hewitt Building and the Engineering Building will be replaced by one new building. Increased space efficiency will compensate partially for losses in gross square footage relative to the Hewitt Building and current Engineering Building. When all the construction has been completed, the academic space per student at The Cooper Union will amount to 460 square feet. This can be compared in New York to 194 square feet per student at Columbia University or 98 square feet per student at New York University (NYU), as seen in Figure 11 on the following page.
The preliminary planning for all of The Cooper Union's properties around Astor Place occurred at the time of the last Middle States review. These documents were prepared for The Cooper Union Master Planning Committee and administration, and set the conceptual stage for redevelopment of Cooper properties, including upgrading its academic facilities. In addition, a physical planning portfolio informed the core of the last strategic plan. In order to ensure that planning of the new facilities was structured at every stage by the academic needs of the institution, initial space-planning and programming studies took place early on. Eherenkranz, Ekstut & Kuhn (EE&K), an established architecture firm that was chosen to manage the complex New York City process for rezoning The Cooper Union properties, also developed a database of existing conditions and expedited input from faculty to develop preliminary programming needs. As noted below, the initial space planning, developed in conjunction with the Engineering Dean's office, was completed by the Fall of 1998. (Appendix 2:3, initial space planning studies.)

**New York City Planning Process**

Working with a team that included real estate professionals, an environmental consultant and an architect, The Cooper Union completed a nearly four-year process to rezone. A general large scale development plan, approved in October 2002, set the stage for redeveloping properties, including that for the new academic building development on the site of the Hewitt Building. (Appendix 2:4, large scale development plan.)
New Academic Building

Design Team, Space Programming
EE&K, working with The Cooper Union’s three schools as well as the Faculty of Humanities and Social Sciences, produced two iterations of new academic building programming. These were provided to Morphosis, the Executive Architect, and Gruzen Samton, the Associate Architect, of the new academic building, as frameworks for working with the broader Cooper Union community to complete building space allocation and programming. From the time The Cooper Union signed the design contract with Morphosis/Gruzen Samton in December 2003 to completion of the master plan’s set of drawings in September 2006, Morphosis/Gruzen Samton and The Cooper Union staff and representatives conducted approximately one hundred meetings on space allocation and programming. This process included participating in or contributing information to the new academic building Space Committee made up of representatives of The Cooper Union’s three schools, the Faculty of Humanities and Social Sciences, Library and student body. The Space Committee was created to provide comments, suggestions and requirements for programming and related decisions. Minor changes to the program, issued as change orders to the construction, will be ongoing through the completion of the structure. (Appendix 2.5, list of new academic building programming studies.)

The 2004 class schedule was used as a template to evaluate the combination of the new academic building and Foundation Building as the workable future of education space for The Cooper Union. It was determined that the class schedule can run virtually unchanged. Questions remain. For example, the Faculty of Humanities and Social Sciences has noted that this schedule analysis was run on a semester that was non-typical for its course load; thus the analysis did not fully take into account a standard full semester of courses. Also, the studio space lost by the School of Art cannot be planned as typical classroom space in the new academic building since students must have access to their studios at all times. The new academic building does not replace the quantity of studio space lost in the Hewitt Building. There are additional concerns among members of the faculty of the School of Engineering. As a consequence, members of the engineering faculty, at its May 2006 faculty meeting, voted their disapproval of the plans for the new academic building. Other concerns relate to the availability of gallery and storage space in the new academic building.

Laboratory Programming
Steve Rosenstein Associates (SRA) was hired as part of the design team. Reporting directly to Morphosis, SRA worked with the Engineering Dean’s office, managing approximately one hundred meetings with faculty, lab techs and the engineering academic administration to produce a detailed lab program for approximately 40,000 square feet of the new academic building. This process included documenting and integrating a complex array of lab equipment into lab designs. Final adjustments to the lab equipment inventory and layouts, also managed
in conjunction with lab users and the Dean's office, is ongoing, with final move documentation expected to be completed by December 2007. At the beginning of the architect-selection process, The Cooper Union also hired Jonathan Rose Companies as the owner's representative. Its role includes all facets of project management, liaison with The Cooper Union administration and documentation of progress. Jonathan Rose Companies submits monthly reports, including progress narrative and budgets. (Appendix 2:6, list of lab programming documents.)

**Sustainable Design**

Although The Cooper Union’s original green goal for the new academic building was to attain LEED Silver certification, the structure has been designed to LEED Gold standards and has the possibility of achieving LEED Platinum certification. The Cooper Union took many steps to reach this level. Almost every other member of the design and construction team, which includes Executive Architect, Morphosis; Associate Architect, Gruzen Samton; and Construction Manager, Sciame, is a LEED-accredited professional with substantial green-building experience. Focused eco-charrettes have been held to refine green goals for the project, which were fueled by The Cooper Union’s consistent demand for sustainable building as a key to future institutional sustainability.

Major features contributing to sustainability include:

- **Site Selection.** The site selection was an environmentally conscious decision to reclaim an existing plot.

- **Safe removal of hazardous materials.** Asbestos and other toxins and pollutants have been removed from the Hewitt structure; demolition and construction waste materials were recycled to the extent possible.

- **Exterior Double Skin.** An exterior double skin in the form of perforated metal panels wrap the glass-clad building. These panels improve the building’s energy performance by controlling sunlight penetration to reduce the influx of heat radiation during the summer as well as to serve as a “coat” in cold weather to reduce energy loss.

- **Radiant Ceiling Panels.** Hot and cold water will run through the building’s ceiling panels to modulate its temperature, which will result in energy savings and improved occupant comfort and controllability.

- **Cogeneration Plant.** This on-site power plant produces “base-load” electricity, while capturing waste heat for heating and (through absorption chilling) cooling needs. This will result in energy savings and will reduce the college’s reliance on outside energy provision.

- **Photovoltaic Glass.** The south face of the building will utilize photovoltaic glass to generate electrical energy—enough to light the building’s atrium. An energy model was created for the project early in the design, and each design decision has been made with the goal of upholding the excellent energy performance of the building, which is approximately 40 percent higher than that of a baseline sustainable building of similar type and size.
• **Green Roof.** A garden adjoining the alumni terrace is to be irrigated exclusively with rainwater, which will mitigate the “heat island” effect by replacing part of the paved cityscape with cooling green space. The roof terrace will also provide recreational space.

• **Grey Water Recovery.** The irrigation systems for these roofs, as well as a separate storm water retention system that will feed the building’s toilets on lower floors, will reduce the flow of storm water into city sewers. These systems, as well as water-saving bathroom fixtures, will also lower the building’s demand on the city’s potable water supply.

• **Recycled or Renewable Finishes and Materials.** A portion of the building will contain rapidly renewable and recycled materials and finishes.

• **Air Quality.** There will be a high quality of air throughout the building, achieved through well designed ventilation systems and the use of low emitting building materials.

• **75 Percent Daylit Building.** The 75 percent target for use of natural light promotes user comfort and health and saves energy by reducing the need for artificial light.

• **Alternate Transportation.** The building will have bicycle storage racks to encourage commuting by bicycle.

• **Commissioning.** Emphasis has been placed on commissioning as a means of addressing goals of sustainability. The intent of the commissioning process is to verify that the building’s energy-related systems are installed, calibrated and performing as designed. Commissioning will optimize energy and cost savings as well as occupant comfort.

• **Measurement and Verification.** The Cooper Union is devising a plan to monitor the building’s HVAC and lighting to track environmental performance over time. This will provide invaluable data for The Cooper Union building management as well as educational and research opportunities.

• **Construction Waste Management.** A projected 75 percent of construction waste will be diverted from landfill disposal.

Major challenges in the design process for the new academic building have been:

• **Air quality,** because laboratory building functions require a higher number of air changes than standard use building.

• **Incorporation of green spaces in an urban setting.**

• **Use of recycled and renewable finishes** while maintaining the durability required for the college environment.

• **Use of innovative design features** such as double skin and radiant ceiling panels.

The Cooper Union took the time and additional costs to conduct peer reviews and construct mockups.
The Foundation Building

The facilities renewal plan calls for funding to be dedicated to renovations of the Foundation Building and to address significant deferred maintenance needs. The exterior of the Foundation Building recently underwent a complete exterior renovation, but there are several concerns regarding necessary interior renovations. The removal of the Hewitt Building and the construction of the new academic building have impacted the space use of the Foundation Building. There are also concerns about space allocation in the Foundation Building following the completion of the new academic building.

The Foundation Building has specialized educational facilities that are particularly successful in the following areas:

- The Design Center.
- The Electronic Resource Center in the Library.
- The wood and metal shop, whose size, quality and location make it one of the best in the country.
- The Architecture Studio, which has been exemplary as a single integrated space for the first four years of the architecture educational program.
- The Great Hall, which continues to be a successful space for lectures and events, providing an important link between The Cooper Union and the community.

There are several proposals on the table for renovations in the Foundation Building, including the following (appendix 2:6, scope of work for Foundation Building renewal):

- Replacement of the HVAC system, with specific important points being the shop areas, including the exhaust for the laser cutter and printmaking facilities; the balancing of temperature and humidity in the Library; the ventilation in the faculty offices and Great Hall; and improving overall energy efficiencies and space controls.
- Possible reconfiguration of the Houghton Gallery.
- Better quality and more quantity of faculty offices for the School of Architecture that have access to natural light.
- Storage space.
- Reclamation of the external arcade.
- Lounge space for students.
Maintenance and Safety

Maintenance of the facilities is handled by the Office of Buildings and Grounds. Faculty and staff may request repairs and maintenance via school offices. The process of allocating funds is determined by the Business Office. The working group covering Middle States standard 3 was unable to find documentation to clarify the process used by the Budget Office in determining the allocation of available funds. In light of the in-process nature of the new academic building and plans for demolition of 51 Astor Place, the major facility for maintenance, rehabilitation and upgrade is the Foundation Building. Under normal circumstances, each department prioritizes its facilities needs and the changes that are required; these are then submitted to the Business Office where funds are allocated as available.

All facilities are reviewed and monitored in a number of ways regarding issues of safety and access. There is a review by an insurance company every two years. The Health and Safety Officer monitors the facilities on a regular basis. The Office of Buildings and Grounds in conjunction with the Business Office evaluates access issues. Technical staff monitor the shops, labs and studios. Guards monitor all facilities through both physical presence and video surveillance. Guards also regulate access to each of the academic and residential facilities. All buildings are ADA-accessible. The working group's assessment was that the safety and access issues related to the facilities are handled in a clear and acceptable manner, as gathered from surveys conducted throughout the Cooper Union community, with the exception of the Engineering Building. However, the working group was unable to gather the necessary documentation regarding the procedures that Buildings and Grounds uses to assess the status of safety and access. The Engineering Building has several outstanding issues regarding access and safety. There have been complaints regarding the procedures for roof access and issues regarding theft; there have also been complaints on the part of students and faculty members regarding clarity and fairness of access rules for students, particularly those working on ongoing lab-based research projects.

TECHNOLOGICAL RESOURCES

Most of the information technology at The Cooper Union is administered through The Cooper Union Computer Center, directed by Robert Hopkins. The Computer Center is responsible for information technology (computer hardware and software resources), connectivity (telecommunications) and audio/visual support.
The institution provides the following resources to students, faculty and staff:

- **Public student computer laboratories and many small departmental labs.** These labs include the Art Computer Studio, the Architecture Computer Studio, and the Brooks Design Laboratory. In addition, many laboratories in the Engineering and Science Departments are heavily computerized. Hardware and software for these labs may be provided and maintained by the Computer Center or, in some cases, may be purchased directly by the three schools. Because of the highly technical nature of many of The Cooper Union’s programs and the rapidly changing nature of technology, needs vary widely across the institution.

- **Desktop computers for faculty and staff,** with access available to most part-time/adjunct faculty and staff. Renewal standard for computers is four years.

- **A telecommunications system** with voicemail, conference calling, call forwarding, and so forth. The advanced features are not available universally.

- **An integrated, web-accessible, online library catalogue and circulation system** serving the consortium of academic libraries known as the Research Library Association of South Manhattan, which includes The Cooper Union, The New School University, Parsons School of Design, and NYU. System servers and maintenance are handled by NYU’s main library.

- **Administrative software,** including NIAS in the Business Office and SunGard BSR in the Development Office.

- **Access to the Internet, email, printing and electronic databases.** Accounts are provided for all faculty, staff and students. Connectivity to the Internet is provided for all Cooper Union community members through the Computer Center. Off-campus access to most of the Library’s electronic subscription services is also provided.

- **User support,** provided primarily through the Computer Center Director, staff and work-study students, as well as through technical staff members in some individual departments and schools.

**The Cooper Union Computer Center**
The Computer Center’s goal is to maintain a state-of-the-art instructional and administrative technology throughout the institution. It has responsibility that broadly covers all means of communication on campus, all educational technology and the development of policy governing the use of that technology. The successful integration of the new academic building into the technical framework of the institution is recognized as an important goal. The Computer Center provides its services to students free of charge. In some cases, access to certain departmental facilities may incur a charge to offset costs (e.g., use of specialized printers).
In order to better achieve its goal, Computer Center operations are divided into five organizational groups:

1. **Information Technology (IT).** The goal of the IT group is to provide computing software and hardware, which furthers the missions of all the other departments (both academic and administrative) within The Cooper Union. The mission of the IT group is to continue to promote the use of technology and to ensure that the technology functions in a secure and efficient manner. The primary focus areas are the drop-in computer centers, dedicated computer classrooms, the campus-wide electronic mail system, web-service support and user training.

2. **Connectivity.** The Connectivity group has primary focus on telecommunications. The goal is to provide reliable and inexpensive voice and data technology to the Cooper Union community. The maintenance of a reliable and redundant telecommunications infrastructure is recognized as critical to the needs of the institution.

3. **Audio/Visual Support.** The Audio/Visual Support group’s charge is to provide audio/visual technology to all users within the institution, including maintenance of specially equipped classrooms, portable instructional devices, lighting and sound systems for the Great Hall and other public spaces and the satellite downlink for educational media support and support for the various media libraries on campus. The goal of the group is to permit all Cooper Union programs to embrace advancing technology in as seamless a manner as possible, so it is necessary to provide continuous training to maintain reliability at the highest level. Until several years ago, audio/visual support was provided by a separate entity AVRAC (the Audio/Visual Resource Access Center). However, with the advancement of technology, it was recognized that the audio/visual needs of the Cooper Union community could be better served by folding AVRAC into the Computer Center.

4. **Student Enrichment Program.** The goal of the Student Enrichment program is to provide Cooper Union students with a source of technical employment in a nurturing environment. Students who work at the Computer Center are supervised and mentored closely by full-time staff. As a source of financial aid and an opportunity for “real world” and “hands-on” experience before graduation, this program is highly successful. At different times during their academic careers, the students may work in any or all of the five organizational groups of the Computer Center; the frequent contact with the professional staff of the center and with the other student computer “operators” creates a deep support system.

5. **New Academic Building Planning Process.** As the new academic building is planned and built, this new organizational group consisting of representatives of the above groups, serves as the liaison between the Computer Center and the various groups both inside and outside the college (e.g., the construction manager). The tenure of this group is flexible, and the group may evolve into an integrated group in support of the new academic building.
The Computer Center employs an automated “ticketing” system to track various technical problems and requests for services. However, the archived information generally does not aid in formulating technical solutions to new problems since most such problems are uniquely new, resulting from ever-advancing versions of hardware and software and addressed in a “just in time” paradigm. However, the system provides a mechanism for ensuring timely response to requests. It also can flag critical problems that arise. For example, recent problems with spam overloads and email delivery led the Computer Center to implement a new anti-spam server.

Aside from the automatic “ticketing” system described above, the assessment procedures used by the Computer Center are anecdotal in nature. Significant emphasis is given to communication between the Computer Center Director, staff and student workers, on the one hand, and the various academic and administrative Cooper Union personnel on the other. Such communication is facilitated by several key features of the Computer Center:

- A large number of students are employed as technicians and consultants to Cooper Union faculty, staff and other students, providing the Computer Center management team the ability to obtain feedback from student-users quickly.
- The professional staff of the Computer Center is immersed in the academic process and is rapidly made aware of any deficiencies in the academic computing area; the Director is a tenured member of the faculty of the School of Engineering, and many of the other staff members serve as adjunct professors, and advisers to students from all schools.
- In the case of the administrative-user population, The Computer Center maintains regular contact with key personnel from all departments and maintains a small satellite office in the main administrative building to provide an increased level of on-site support.

Planning and design for the new academic building incorporate a comprehensive design for the technological infrastructure to accommodate anticipated changes in end-user needs. However, there is currently no overall written, strategic, information-technology plan for The Cooper Union that incorporates future end-user needs and applications. There have been prior attempts to draft such a plan, but the committees that were formed to address the matter disbanded without producing a report agreed to by the majority. (Appendix 2: Technology Committee report 2004.)

The new academic building is projected as a wired and wireless space. There are plans for enhanced IT in the new academic building, such as an integrated card-access security system and more IT-equipped classrooms. It is also likely that new problems and technological solutions will develop over the next two years as the construction process continues. However, there do not seem to be formally documented IT user plans for the new academic building at this time, nor are there plans for training and staffing required by enhanced IT.
Assessment for the role of IT in the educational process is performed by the various academic departments as part of the accreditation requirements of the academic programs. Administrative departments also assess their use of IT.

Institution-wide networking resources are handled exclusively by the Computer Center. There are also local networks supported by the individual departments with some support by the Computer Center personnel. This flexibility can in many cases be beneficial because of the highly technical nature of the professional schools that comprise The Cooper Union. However, there are also problems in which certain systems and databases are not linked or are incompatible, for example, those of the Office of Admissions, the Bursar’s Office and the Office of Student Services.

Based on budget allocation to the various departments and the Computer Center, the current technology budget is adequate to support current needs. It is reasonable to expect that the evolving technologies will require increases in investment to stay current with software and hardware developments. The institution also needs to invest in the education and training of staff and faculty so as to stay current on the emerging technologies and the proper use of new equipment. There is concern that the present budget does not allow for adequate growth. It is, however, difficult to track budget needs without a single, integrated system or plan for assessment of needs, requests and future plans.

Accreditation of the academic programs provides the impetus for assessment of adequacy of IT facilities in the educational process. The Computer Center does a good job of meeting the needs of the constituents, subject to several constraints (see below). In-house solutions not only save money but also involve students, serving as a learning experience, but such solutions can take a long time to develop and have limited flexibility and facility for growth. The Computer Center’s ticketing system provides a good mechanism for internal assessment—that is, how well tasks are being performed—and for identifying urgent issues that require immediate solution, for example, addressing problems with spam and viruses. There is diligence to both virtual and physical security issues, including disaster recovery. Flexibility—as opposed to one-size-fits-all solutions—is an important feature that allows the particular technical needs of the professional programs to be met, but it also creates problems at times, such as lack of compatibility among some administrative databases.

There are five IT problems:

- Lack of a written overall IT plan for The Cooper Union that includes future and user needs and applications.
- Lack of formal mechanisms of communication between the Computer Center and its constituents.
• Budgetary constraints, clearly exacerbated by lack of a written plan. It is difficult to know the allocation of resources to IT that would be adequate.

• Lack of accountability in the absence of established measures.

• Lack of expertise in assessing the needs of academic and administrative units.

Most Cooper Union IT problems can be traced back to these root problems. There is also a recognized urgency to address these issues in light of the new academic building and other changes to the campus (for example, ongoing work in the Foundation Building).

HUMAN RESOURCES

Funding for new staff and faculty positions is approved by the President and the Vice President for Business Affairs and Treasurer in response to requests by each department. Positions are created in response to demonstrated needs. Procedures (including expectations for consultation with faculty members) are clear and, in the case of faculty positions, are set out in the governance documents of each school. (Faculty governances, the faculty union contract and the staff union contract are all in the Middle States Electronic Resource.)

While there have been a number of retirements and a few resignations over the last five years, the increase in number of positions has been limited because of The Cooper Union’s budget constraints. The institution has in recent years been out of compliance with the faculty union contract in terms of the ratio of adjunct to full-time faculty members because of a short-fall in the minimum number of faculty and librarians. In addition, The Cooper Union’s faculty is aging as a group. In the School of Art and the Faculty of Humanities and Social Sciences, most faculty members are tenured. It is important to the institution's educational mission that the teaching faculty be augmented by young scholars and practitioners with new approaches to their fields. Since human-resource issues relating to faculty are covered under standard 10 in chapter five of this self-study, the rest of this section addresses staff concerns.

In the past, job descriptions and guidelines for staff members have sometimes been inconsistent. The new staff union is working with the Budget Office on creating uniformity and clarity of procedure around these issues.

Staffing levels across the institution are considered generally slim, with every strategic plan portfolio requesting additional help.
**Turnover Rates**

Records indicate that turnover among full-time and proportional faculty, staff and administrators across The Cooper Union is remarkably low, and even adjunct faculty members tend to teach for many years here in some areas, giving the institution stability in its pedagogical mission. Our annual celebration of longtime personnel at The Cooper Union (those who are marking their ten-, twenty-, thirty-, or even forty-year anniversary) provides a good snapshot. The low turnover rate, in turn, is the best indicator of a high level of commitment among faculty, staff and administrators.

There has, however, been some turnover among untenured faculty members due to the ordinary course of professional development and commitments among adjunct faculty members and the changing curricular needs of the institution. The Cooper Union is fortunate to have an outstanding pool of adjunct faculty members to draw on in all areas of teaching, attributable in no small part to our location in New York City and the perception of The Cooper Union as a conservatory in art and architecture. Teaching conditions are very good, and the three schools and faculty of Humanities and Social Services attract excellent candidates for available adjunct positions. However, concerns have been expressed in the School of Engineering regarding difficulties in the recruitment and retention of adjunct faculty caused by noncompetitive compensation. (See also chapter six.) Employee satisfaction and evolving needs of the workplace are assessed through faculty reappointment procedures and staff reviews.

Because of the small size of the institution, there are limited opportunities for advancement or lateral moves among staff members and administrators; therefore, people end up going to other institutions. In some areas (Student Services and Development in particular), turnover can be high. This difficulty is exacerbated by the fact that wages and salaries are presently considered low. As a result, some specialized professional staff members move on once they have fulfilled their potential and reached a wage ceiling at The Cooper Union.

**Assessment of Administration**

As individuals, administrators are assessed with the same performance review and job-satisfaction procedures as the rest of the non-faculty and Library staff. The methods have been considered effective by those who have had experience with them. Staff members are subject to a yearly review with their supervisors, as stipulated in Section IV-(D) of The Cooper Union Staff Handbook. The description of the assessment process is rather cursory: a yearly performance review, initiated by the employee’s office administrator or designee, may occur during the time of the annual budget formulations, in the latter part of the fiscal year. The yearly review process was one of the catalysts for the formation of the new staff union.
In practice, however, non-union staff members are required to write an assessment of what they have accomplished during the preceding year and what they hope to achieve in the upcoming year. The supervisor uses this as an input document to a narrative regarding the employee’s accountabilities to the work environment over the year. This written self-evaluation is accompanied by a face-to-face meeting with a supervisor. Staff members who belong to the Union @ Cooper Union have the option of writing a self-evaluation. Whether or not they exercise this option, they are still required to meet with a supervisor for a yearly face-to-face performance review. The goal of the process is to help employees and supervisors understand how, working together, they can continually improve their contributions to the mission. The administration is aware of a level of job dissatisfaction among the staff because of the need for the institution to accomplish more with fewer financial resources.

Access to information on benefits, vacation, health care and other issues directly affecting individual employees is difficult to obtain. It is understood that the Human Resources unit is sorely understaffed because of financial constraints. Although there is an employees handbook, which appears in totality on http://www.cooper.edu, it is unrealistic to expect that affected personnel will refer to the handbook on their own each semester, each year, or at all. Information on vacation, personal, holiday and other approved leaves must be requested on an individual basis.

**Professional Development**

Professional development opportunities for staff members are limited by funding issues, but because of The Cooper Union's particular strengths, the institution is often able to take care of learning and development needs for staffers in-house. Administrative staff, for example, are trained on new computer programs by members of the Computer Center staff, obviating the need for outside training. In other cases, outside professionals have been brought in to conduct group training. All staff members may enroll in continuing education programs at no cost, provided there is space in the class (paying students have priority). There is, however, a sense among technical staff members that more technical training opportunities should be made available.
Suggestions and Recommendations

This self-study

**Recommends** that for the efficient and equitable use of space in the new facilities model for The Cooper Union academic programming, a centralized but flexible scheduling system be installed and tested before the new academic building opens in the Spring of 2009.

**Recommends** that a written IT plan and formal assessment procedures be developed and put into place within the next year. In particular, an institution-wide IT committee should be formed. This committee should have appropriate representation from the various Cooper Union constituencies, including faculty and librarians, as well as the Computer Center. This IT committee should be an internal committee, but one that seeks the input and expert advice from outside consultants. The composition and charge of this committee may be subject to union negotiations; thus, the necessary discussions should commence immediately. One main goal of the committee should be to draft a comprehensive IT plan. A second goal of the committee should be to propose assessment procedures for the interactions between the Computer Center and the various college constituents. One solution may be to make this a standing committee, which assists the Computer Center in long-term planning that meets the needs of all concerned at The Cooper Union. These assessment procedures would also facilitate appropriate budget planning and allocation of resources.

**Suggests** that a digest of the space and time planning studies be published to The Cooper Union community in order to clarify the working efficiencies of the new academic building.

**Suggests** that a current status and planning report of work on the Foundation Building be similarly published.

**Suggests** that, although there is little to be done in terms of staff advancement, it would be beneficial to the institution to increase wages where possible as the institution’s financial situation improves.

**Suggests** that institution-wide policies be developed and made public to all employees to ensure equitable treatment of employees with regard to professional development.

**Suggests** that it would be desirable and more efficient if employees had electronic access, with individual passwords, to their “own” accounts. As an alternative, include all individual employee data on their monthly pay checks or deposit slips, with an automatic update for each employee accessible in the system.
Chapter 3

Leadership, Governance, Administration and Integrity:
Middle States Standards 4, 5 and 6

Following George Campbell Jr.’s appointment as President in mid-2000, he conducted a thorough review of administrative structures and initiated efforts to enhance the effectiveness of the Board of Trustees. The President, with the concurrence of the Board of Trustees and the leadership of the Academic Council, developed and implemented a strategic planning process in 2000 designed to set the institution on a path of financial sustainability and integrity and ensure the continuing leadership of the college in higher education. Equally important was the administration and Board’s commitment to maintaining the full-tuition scholarship policy and practice. As outlined in the plan: the college now has an income-producing building on 26 Astor Place; construction of the new academic building is underway; the existing real estate portfolio of assets has been restructured: some properties have been divested; and the college has secured a developer for the property at 51 Astor Place. The President has also appointed a President’s Council, which, while not a governing body, supports the broader academic and social mission and assists in raising awareness of, counsel to and funding for the college.

This self-study has found that the governance system is now more conducive to ensuring that:

• Academic decisions reflect the mission of The Cooper Union.
• Decisions have a strategic focus on the college’s mission and goals.
• There is accountability and oversight for compliance with accreditation standards, disciplinary expectations and regulatory requirements.
• There is efficient and effective use of the time and talent of the Board, the Academic Council, the President’s Cabinet and the administrators; and that there is a timely delivery of results.

This chapter addresses Middle States standards 4, 5 and 6 by reviewing changes to the Board of Trustees, the administration and the policies and practices that constitute the integrity of the institution. Following are discussions of the Board of Trustees, its composition, functions and membership and the administrative structure put in place by President Campbell.
LEADERSHIP

Board of Trustees: Composition and Operation

According to The Cooper Union Bylaws (appendix 3:1, Bylaws), Board members are elected to a four-year term at an annual meeting. The terms of office are staggered, with the members divided into four classes. At least one member of each class must be an alumnus or alumna. These four Trustees, who are nominated by the Alumni Association, are regarded as representatives of the viewpoints and interests of the college’s alumni. There is also one Trustee who is required to be a descendent of Peter Cooper. The other nominees are selected by the Committee on Trustees from a pool of candidates recommended by the Board through professional and/or social networks. Any Trustee elected after the annual meeting of 2001 is restricted to three consecutive full terms. The elections are by ballot and require a majority vote of the Board.

The makeup of the Board has shifted over the past 10 years so that it strongly represents the governance needs of the institution, with practitioners in the financial and business communities and related areas such as law and real estate. More than half of the Trustees (13 of the 24, which includes the 4 alumni Trustees) are Cooper Union alumni (appendix 3:2, list of Trustees). The committee structure of the Board contributes to an active flow of information to the Trustees about the college and its various administrative, academic and financial activities. There is an Executive Committee, which comprises the Chairs of The Cooper Union Board of Trustees standing committees. These standing committees are: Master Planning, Development, Academic and Student Affairs, Committee on Trustees, Finance, Compensation, Audit and Investment as well as ad hoc committees as needed. (Appendix 3:3, list of Trustee committees and membership.)

There are fewer women, artists, academics and leaders of the nonprofit sector than there were 10 years ago; the current racial composition is 87 percent Caucasian. The Board is now embarking on an effort to expand its membership to as many as 40, which is the outside limit mandated in The Cooper Union bylaws. The institution’s Charter limits the number of Trustees to 25, but the Charter is now in the process of being amended (appendix 3:4, amendment proposal). Forty Trustees, a number more in line with bodies of other institutions of higher learning, will provide the Board with the opportunity to diversify its membership while increasing its fundraising potential.
Since 2000, the changes to the Board of Trustees that have occurred confirm that the Board is—according to Middle States standards—a “governing body with sufficient independence and expertise.” The changes are as follows:

- Quarterly Board two-day meetings have replaced meetings lasting a total of three hours.
- Membership term limits were imposed (a maximum of three four-year terms).
- Since 2001, the Board has expanded from 18 to 25.
- Committee meetings have taken place with greater frequency (particularly between Board meetings).
- Board mailings have been streamlined (materials are succinct, using much less paper).
- Student representation has been added at the committee level.
- Meetings between the Board leadership and selected faculty members have begun.
- Formal communication channels have been established between the Board leadership and student representatives.
- The Executive Committee meets at least once between Board meetings.
- Leadership changed in 2003, with Chairman Ronald W. Drucker replacing Robert A. Bernhard, now Chairman Emeritus.
- Ad hoc committees have been established as needed (Sesquicentennial, Master Planning).
- The Finance and Audit Committee was separated into two committees to ensure greater independence of the two functions (as now required for public corporations).
- The Finance Committee, working with the Business Office, regularly updates future projections under varying financial conditions.
- The Investment Committee recently restructured the institution’s portfolios and changed its set of fund managers. While capital preservation is the committee’s underlying strategy, in the first full year under the current strategy, the investment portfolio earned a 24 percent return.

The Board of Trustees accepts its important role in ensuring the well-being of the college and working with the administration to realize the vision set forth by the senior leadership. To assess the Board’s efficacy in meeting its responsibilities, the Committee on Trustees is in the final stages of adopting a Board of Trustees self-assessment. The Development Committee of the Board of Trustees has developed a new policy that was approved by the full Board. The policy, which states a condition for membership on the Board, sets expectations for financial participation in proportion to a Trustee’s ability to “give or get” (appendix 3:5, Trustee self-assessment proposal). Although there is no minimum financial commitment specified in this policy, a substantial contribution is expected from each member’s own funds and/or personal and/or professional contacts. This policy confirms that fundraising and financial stewardship are among the most important duties of the Board.
The Board gathers data through its committee structure, which includes the administration, as well as through other avenues of information. In the recent case of financing the new academic building, for example, the plan was thoroughly vetted by the Finance, Audit, and Investment committees on issues related to financial assets, and its final version was reviewed in detail by the full Board before its approval. The Board also receives financial information from the Investment Committee, which is advised by Cambridge Associates on prospective investments and funds, as well as from the Development, Finance and Audit Committees.

**Flow of Communication**

The Cooper Union’s administrative staff is involved in working with the Chairs of each Trustee committee to develop quarterly meeting agendas and assemble all necessary background materials. This information is gathered in notebooks for upcoming meetings. At times, members of the various committees directly solicit information from representatives of the administration and faculty. The Chair of each committee reports on the committee’s work to the full Board.

Input from faculty, students and staff is currently solicited by and communicated through the Board’s committee structure; the Administrative Committees of the four faculties; presentations from Deans, faculty and student representatives to the Academic and Student Affairs Committee; and the Vice Presidents of External Affairs and Business. This communication includes informal discussions at dinners preceding each Board meeting. The concerns of the alumni are represented by the Alumni Trustees. As part of Board meetings, the Board Chair occasionally meets with students and faculty. The Chair of the Academic and Student Affairs Committee, together with the Board Chair, also meets privately with student and faculty representatives quarterly.

The Administrative Committees of each of the four faculties, as stipulated in their governances (all governances are in the Middle States Electronic Resource), are designed to advise and counsel the Dean on financial and personnel policies that represent the interests of the academic program, students and faculty. The Dean is charged with reporting those concerns to the President, who is an *ex officio* member of all committees of the Board of Trustees.

Since 1995, there has been no Provost or Vice President for Academic Affairs to serve as a coordinator of and conduit for information regarding academic matters to the President and/or the Board. The President serves as the Chief Academic Officer. Also, although a Faculty Senate is mandated as part of the institutional advisory structure in the governances of the Schools of Engineering and Art (and mentioned in the governance of the Faculty of Humanities and Social Sciences), it is not currently functioning. A structure for a Faculty/Student Forum is also referenced in the Cooper Union Federation of College Teachers agreement.
In the absence of a Provost and a Faculty Senate, the breadth, depth, validity and reliability of the information that the Board receives from the college’s different constituencies depends on the efficacy of the Administrative Committees and the Deans (as well as on the accuracy and completeness of the reports of concerns made by committee Chairs to the Board).

The Organizational Structure of The Cooper Union

The current administrative structure places the President of the college, who reports to the Board, at the head of the institutional chain of authority. Since the last Middle States evaluation visit in 1998, The Cooper Union administration has been substantially restructured. After taking office in July 2000, President George Campbell Jr. reviewed the effectiveness of administrative structures and streamlined the management, in particular consolidating development operations; Public Affairs; Alumni Relations; and Continuing Education and Public Programs into an Office of External Affairs led by Vice President Ronni Denes.

The position of Special Assistant to the President and Secretary to the Board of Trustees has been vacant and unbudgeted since 2002. Robert Hawks, Vice President for Business Affairs and Treasurer, serves as the Acting Secretary to the Board of Trustees.

At the same reporting level to the President are all of the officers of the institution, the Vice President of External Affairs, the Vice President of Business Affairs, the four Academic Deans, the Dean of Admissions and Records and the Dean of Students (appendix 3:6). Together they form the Academic Council, which is staffed by the Director of Operations in the Office of the President. Members of the Council have impressive credentials and considerable experience; their current curricula vitae are on file in the Document Room. Since 1998, three of the four Academic Deans are new: Anthony Vidler, Dean of the Irwin S. Chanin School of Architecture (2001); Saskia Bos, Dean of the School of Art (2005); and William Germano, Dean of the Faculty of Humanities and Social Sciences 2006). Eleanor Baum remains Dean of the Albert Nerken School of Engineering. There is a new Vice President for External Affairs, Ronni Denes (2000), and a new Dean of Admissions and Records, Mitchell Lipton (2006). Linda Lemiesz remains the Dean of Students. The Academic Council meets monthly throughout the year and serves as the overall planning group for the institution. Ad hoc subcommittees of the Academic Council are formed as needed to carry out various assignments, reporting back to the Council and often including other members of the community. As referenced in chapter two, the Academic Council will assume an enhanced role in resource allocation in fiscal year 2008–9.

The senior leadership team of the institution now consists of the President, Vice President for Business Affairs and Treasurer and Vice President for External Affairs and is staffed by the Director of Operations, Office of the President. These officers form the President’s Cabinet and meet weekly.
The Deans of the three schools and of the Faculty of Humanities and Social Sciences form the Academic Deans Council, which meets on a monthly basis to coordinate academic matters that cut across the institution. The President chairs these meetings.

In the new management structure, eight individuals—the Deans and Vice Presidents—report directly to the President.

The faculty and librarians are organized as the Cooper Union Federation of College Teachers (CUFCT), which is affiliated with the New York State United Teachers (NYSUT) and with the American Federation of Teachers (AFT). The CUFCT has a contractual agreement with The Cooper Union covering the terms and conditions of employment. The union ensures a negotiated role of faculty in issues such as hiring of faculty, promotion and tenure. In addition, all of the individual faculties are internally organized under a set of governances that are consistent with the contract. The President and Vice President for Business Affairs and Treasurer meet periodically with the leadership of the CUFCT to discuss contractual matters and issues of concern.

The students elect a Student Council, each school having its own council whose members also serve on the Joint Student Council and on various school committees. The President meets regularly with the Administrative Chairs of the Student Council.

In the perspective of this self-study, the absence of the position of Provost or of an academic officer at the Vice President level limits the advocacy for the academic side of the college. A Provost would act as an intermediary between the Academic Deans and the President (and, by extension, the Board) especially in the work of the President’s Cabinet. Concern about the lack of a Provost has been expressed by faculty regarding the planning of the new academic building, in which a chief academic officer would have played an immediate role in coordinating the agendas, scheduling and space requirements and equipment needs of the three schools and four faculties.

Given all of the development and construction activity and the planning for the new academic building, a new group with representatives from each of the faculties and students from each of the schools was established and meets monthly with the President to provide another avenue and conduit of up-to-date information to various constituencies. This group is called the Institutional Liaison Group. Its purpose is the dissemination of information only.

The Cooper Union is administratively streamlined and efficient. The Office of the President, for example, is run by a Director of Operations with two administrative assistants. The Vice President for Business Affairs has under his purview the budget, finance, human resources, safety compliance, information technology, the office of assessment and the entire management
of physical facilities—a very wide span of responsibility. The Vice President for External Affairs has responsibility for fundraising and the capital campaign, alumni relations, public affairs, continuing education and public programs. The lines of authority and management are therefore clear but are also hierarchical over a broad base. For information to flow, there must be regular communications between and among the members of the Academic Council and their faculty and/or staff.

The Faculty Senate’s charge (when functioning), as described in the governance for the School of Engineering, is to “concern itself with the study of goals, standards, and physical facilities of the Cooper Union. It shall study problems that involve the School of Engineering and the Schools of Art and Architecture and their relations with other divisions of the Cooper Union. It shall concern itself with educational trends, and with planning and development, and shall be advisor to the President.”

Overall, the administrative structure of The Cooper Union is clearly outlined and known through various venues for information around the college, but the most information about the administrative structure is found in the “About The Cooper Union” section of The Cooper Union website, http://www.cooper.edu/administration/about/Welcome.html.

Administrative policies are reviewed and updated by the Board, President and administrative staff in concert with the Administrative Committees of the four faculties, as stipulated in their governances. The Administrative Committees of each of the four faculties consists of their respective Deans, who serve as Chairs, and a specified number of regular faculty members. These committees operate in an advisory capacity to the Dean, representing the interests of the faculty in financial and personnel matters; they also evaluate reports and make recommendations to the faculty for appropriate action. Changes in administrative policy are announced to the campus community through mass-email, paper memos and the website, which is limited both in terms of its search capability and contact information for faculty or staff. At times, there have been complaints that announcements of administrative decisions, such as a recent revision and subsequent recall of the academic calendar, arrive after the fact. This weakness in communication prevents input from the campus community and suggests that there is insufficient transparency in the making of such decisions.

INTEGRITY
The Cooper Union has a number of policies and procedures that when combined cover the Middle States understanding of “integrity.” This self-study examines three key areas: conflict of interest; issues of intellectual integrity; and policies regarding conflict resolution, grievances and codes of conduct.
Conflict of Interest
The Trustees, President, Vice Presidents and Deans are all required to disclose possible conflicts and sign conflict-of-interest statements. Other members of the community whose responsibilities create potential conflict of interest circumstances are also required to sign such disclosure statements. This requirement does not reach into the faculty or staff level. (Appendix 3:6, conflict of interest statement.) There is, however, a conflict of interest clause (V-M) of *The Cooper Union Staff Handbook* (appendix 3:7, *The Cooper Union Staff Handbook*), which states:

Employees must not engage in activities which conflict with the business interests of The Cooper Union or impede their job performance at The Cooper Union. In addition, no employee may accept any gift(s) with a total value of more than $50.00 from any competitor, customer, supplier, affiliate, or any other entity with which The Cooper Union does business.

If an employee has any questions about the applicability of this policy he/she should contact The Vice President for Business Affairs and Treasurer.

Any breach of the above rules may result in appropriate disciplinary action, up to and including immediate discharge.

Issues of Intellectual Integrity

*Plagiarism*
In common with most other institutions of higher education, The Cooper Union has experienced a wave of plagiarism cases and other acts of academic dishonesty resulting, for the most part, from the cut-and-paste availability of web-based text and data. During tests, there have been instances of the inappropriate use of PDAs. The weakening sense of intellectual property rights on the World Wide Web has resulted in entering students’ diminished understanding of what constitutes their “own” thoughts. As the Director of the Center for Writing and Language Arts has said, “It’s no longer adequate to simply say cheating is bad.” As a consequence, all freshmen entering The Cooper Union, as part of the assessment of their writing, now receive instruction on how to cite sources appropriately and are also reminded of the central value of integrity in academic environments.

The plagiarism policy is published in the “Campus Security and Safety” report and duplicated on the Office of Student Services website. The language is identical to that adopted by the Faculty of Humanities and Social Sciences. A statement of procedure follows:

In the Faculty of Humanities and Social Sciences at The Cooper Union, the guidelines for cases of plagiarism, whether intentional or unintentional are: The essay or examination will receive a grade of “F.”
The instructor will inform the Dean of Humanities and Social Sciences, who will report the plagiarism to the appropriate academic Dean in the School in which the student is enrolled.

The matters of plagiarism, and the disciplinary procedures to address it, are handled differently by the Academic Standards Committee of each school. The Academic Standards Committees of each of the three schools include the respective academic Dean, as well as the Dean of Students and the Dean of Admissions and Records (all Deans are ex-officio). There is inconsistency among the Academic Standards Committees of the three schools in the manner of student notification or manner of investigation and dispensation of matters of academic dishonesty. The standards violated are not always specified to the Academic Standards committees, nor is the faculty or Dean present to explain the charges.

The School of Architecture publishes a statement in the course catalogue (p. 36), which defines violations of academic integrity as “cheating, plagiarizing or the submission of work which has not been prepared by the person claiming authorship.” These matters are handled by the school's Academic Standards Committee. The School of Engineering also publishes its requirements for academic integrity in the course catalogue. This statement clearly defines plagiarism through a series of eight bullet points (p. 64). Matters of plagiarism are resolved by the Associate Dean of Engineering, with an appeals channel through the Dean of Engineering. Second-time offenders may be referred to the school's Academic Standards Committee for possible dismissal (p. 65). There is no separate statement on academic integrity in the School of Art's section of the course catalogue, but these matters, when referred, are handled directly by the school's Academic Standards Committee.

Within the three degree-granting programs, especially in the Schools of Architecture and Art, there is debate over what constitutes plagiarism in terms of influence and appropriation against the backdrop of intellectual property rights and the unique practices of those disciplines; as a consequence, there is resistance to the idea of a blanket plagiarism policy for the entire institution that articulates these nuances. There is also the conviction in the School of Art that according to governance, these issues are the charge of the Academic Standards Committee and do not require a new entity to address them. Any committee established to review or act on a student’s academic eligibility to remain at The Cooper Union usurps academic standards prerogative under governance and contract. A uniform, institution-wide policy on academic integrity has been prepared and is being discussed in the Academic Council; the policy contains expanded definitions of what constitutes academic dishonesty and outlines procedures for a new institution-wide body to deal with cases. (Appendix 3:8, current draft of joint statement on academic integrity.)
Research and Patents

The Cooper Union Research Foundation (CURF), “the primary research unit of the School of Engineering” (as described on The Cooper Union website), has issued its own policy on patents and royalty-income distribution (appendix, 3:9, CURF statement). It is expected that this policy will also apply at the new C.V. Starr Research Foundation.

Other than this example, there is no campus-wide policy on research patents, intellectual property rights or shares of royalty income. The process is ad hoc and exercised on an individual basis. If a patent-worthy project or proposal is developed under the auspices of The Cooper Union, it would be brought to the attention of the Vice President of Business Affairs, who will determine, in consultation with a patent attorney if necessary, whether or not The Cooper Union will sponsor the patent. If so, The Cooper Union will pay for the patent process, with the agreement that the institution will split any proceeds 50/50 with the individual(s) who developed and/or exploited (i.e., engaged in entrepreneurial marketing of) the patented project.

Conflict Resolution, Grievance Policies and Codes of Conduct

Faculty and Staff

*The Cooper Union Staff Handbook* clearly outlines conflict resolution and grievance proceedings in Section III-B for “Any member of The Cooper Union community who believes that he or she has been discriminated against or harassed in violation of any provision of The Cooper Union's non-discriminatory or harassment policies.”

Grievance policies and procedures are included in the Cooper Union Federation of College Teachers (CUFCT) contract with The Cooper Union, which is more detailed than the staff handbook. The CUFCT policies and procedures include academic freedom grievances (Article Two) as well as other issues (Article Thirty-five) defined as “any dispute concerning the application, interpretation, or reasonableness thereof or other claimed violation of any term or condition of this Agreement [the CUFCT contract] other than those addressed in Article Two (Academic Freedom and Academic Freedom Grievance Procedure).” Similarly, Article Five of the staff union contract (the Union @ Cooper Union) defines grievance as “any dispute concerning the application, interpretation or reasonableness thereof or any other claimed violation of any term or condition of this Agreement”

However, only the agreement between CUFCT and The Cooper Union is actively distributed to all its constituents. The staff handbook is a component of the staff union contract. All new unionized staff receive a copy of both the contract and the handbook and are required to sign an acknowledgement of receipt. Also, hard copies of both the faculty and staff handbooks are available in the Business Office. The grievance procedures are included in the staff union and the non-union staff handbooks.
It should be noted that neither adjunct nor proportional faculty are covered by the contracts with the staff union or the CUFCT.

The governances of the three schools do not deal explicitly with grievances. The governance of the Faculty of Humanities and Social Sciences does not address grievances but includes language regarding the appeal of decisions on reappointment and tenure.

Regarding a code of conduct, there are some elements outlined in The Cooper Union Staff Handbook. The sections that touch on such issues (smoking, alcohol and drug use, solicitation, conflict of interest) are included under “Section V: General Information,” mixed among other, unrelated matters such as audio/visual equipment and office services. A code of conduct is not outlined in any of the four governances; however, in the agreement with the CUFCT, three of the four grounds for dismissal for tenured faculty deal with conduct:

- Professional incompetence due to either continuing physical or mental disability;
- Professional incompetence manifested by gross neglect of duty, or grave and continued disregard of scholarly standards or professional responsibilities (advocacy of an unpopular cause or opinion shall not in itself be considered adequate cause for dismissal);
- Conviction of a crime involving moral turpitude that is proven beyond a reasonable doubt.

The fourth condition is “a demonstrably bona fide extreme financial condition at The Cooper Union that necessitates the abolition of the position held by a Faculty member.”

Regarding faculty grievances against students, all complaints about academic misconduct on the part of students are brought to the Academic Standards Committees of the three schools. There is a need to address incidents in which academic misconduct by a student is criminal in nature, such as the assault on an art professor in the classroom and brought as a complaint to the Student Judiciary Committee under the Code of Fair Practice. It remains to be determined when and how the decision is made to bring in (and whether to bring in) appropriate law enforcement agencies.

Students

The rules and procedures on student discipline and student grievance are found in the “A Code of Fair Practice” that is printed in both the course catalogue and the “Campus Security and Safety” report (appendix 3:10, “A Code of Fair Practice”). It is also posted on the Office of Student Services website, http://www.cooper.edu/admin/security/campussafety_0607.pdf

The Campus Safety and Security report is given to each student at freshman orientation and to all continuing students every Fall. The course catalogue, which outlines the central Code of Fair Practice is available for students at the Office of Admissions and Records or online at: http://www.cooper.edu/administration/registrar/catalog_05.07.html.
These policies are repeatedly discussed with incoming students over the course of their orientation.

Prior to the entering class of 2006, all students were required to sign and submit a document stating that they understood the institution’s academic and behavioral policies and attendant grievance procedures. However, after instances of cheating in which the students involved claimed no knowledge of such policies, the methods for disseminating this information were changed.

In September 2006, incoming students were required to take a three-hour workshop run by the Center for Writing and Language Arts in which a number of topics are covered, including intellectual honesty, plagiarism and the proper referencing of sources. The instructors of these sessions are required to take attendance, thereby ensuring an assessable level of awareness on the issue of academic honesty. This workshop was expanded to two two-hour sessions in September 2007.

Although students are no longer required to sign and submit a document stating that they understand the Code of Fair Practice, the institution’s expectations are stressed, as mentioned above, throughout their orientation, especially with regard to the dormitory, which is a highly regulated environment. Each student also receives a letter from the Dean of Students notifying him or her of the consequences of violating the institution’s substance abuse rules. This letter includes a voluntary “Waiver of Rights under the Buckley Amendment,” which would allow The Cooper Union to notify a student’s “parent or guardian named below in any case in which I have been warned about using substances illegally or otherwise endangering my safety or that of other residents or notified of a pending eviction because of such behavior.” (Appendix 3:24.)

In the course catalogue that functions essentially as a contract between the college and the student body, there is relatively little language regarding conflict resolution in the section detailing the “Student Code of Fair Practice” (pp. 20-24), other than a section on sexual harassment (Part Two, Category C, pp. 21-22) and procedures regarding student discipline, which addresses legal, social and personal behavior (including violent conduct) as well as academic honesty (Parts Four through Six, pp. 23-24). There is an appeal process (Part Six, p. 24) if there are charges brought against a student for code infractions, but there is no explicitly stated recourse for students who have a grievance against a member of the faculty or administration that does not fall under federally legislated prohibitions against sexual harassment or racial discrimination.
Since there is no mechanism in place for a complaint that falls outside the conditions outlined in the institution’s documented grievance procedures, and recognizing that all conceivable grievances cannot be defined a priori, such matters are handled informally and on an ad hoc basis. A student harboring a complaint about an instructor may turn to a trusted faculty member, a student advisor, an academic Dean or the Dean of Students. An instructor might go to a department head and/or an academic Dean. A staff member in conflict with another worker or a supervisor might report it to upper-level administrators. The resolution of these issues ultimately falls to the institution’s chief human resources officer, namely, the Vice President of Business Affairs. This is not an ideal circumstance in all cases and could conceivably lead to conflict of interest situations. However, the institution’s policy is to advise employees of their rights to file complaints with appropriate outside agencies.

There is no conflict resolution or grievance procedure for students in regard to faculty, except for civil rights violations. Students can bring complaints about other students under the Code of Fair Practice. Students must bring complaints about violations of their civil rights to Vice President Hawks; the sexual harassment section of the Code of Fair Practice references this requirement.

Complaints arising in the student residence, however, fall completely under the Code of Fair Practice. Under the Code, the Dean of Students must investigate complaints and can resolve them rather than bring the complaint to the Student Judiciary Committee if the students involved agreed to such a resolution.

Despite inconsistencies and inadequacies found during the self-study process regarding policies and procedures, this self-study finds that The Cooper Union does have an academic and administrative climate that fosters respect among students, faculty, staff and administration for a range of backgrounds, ideas, and perspectives. The Cooper Union proudly carries on its liberal tradition, now over a century and a half old, of admitting everyone without regard to creed, race or background. It has a clearly stated and communicated cultural diversity policy published in the “Campus Security and Safety” report (pp. 6-7) and duplicated on the Office of Student Services website. It affirms the college’s support for “equality of opportunity for all persons” and states that the institution “does not discriminate on the basis of age, race, religion, sex, color, sexual orientation, national and ethnic origin, nor does it discriminate against qualified handicapped persons, in the administration of its admission, employment and educational policies or scholarship, loan, athletic and other school administered programs....” (Appendix 3:11, “Campus Security and Safety” report.)

The Dean of Students, Linda Lemiesz, reports that The Cooper Union has a very good record on cultural and racial diversity, and that there have been no student complaints lodged against a fellow student or against staff or faculty.
Suggestions and Recommendations
This self-study:

Recommends the appointment of a Provost or Vice President for Academic affairs as soon as financially feasible to ensure that academic issues are adequately represented in the President’s Cabinet and communicated to the Board, and that there is greater coordination in academic resource allocation.

Recommends, within three years, the reconstitution of an active Faculty Senate to better “update the faculty on mission, resource management, and academic issues.” (Middle States standard 4.).

Recommends the adoption of a uniform code and procedure regarding academic integrity (inside and outside the committees of the individual schools) within three years. Work on this is ongoing.

Suggests that there be an ongoing review by the Academic Council of all policies regarding conflict resolution, grievances and codes of conduct.

Suggests that all changes in or additions to stated policies be clearly and promptly communicated through mass email, with referral to The Cooper Union Staff Handbook or other relevant document.

Suggests that since the location of Human Resources within the Business Office does not provide privacy to staff seeking assistance on health, personnel, benefits and other issues, a more private location for Human Resources be provided.
In September 2000, President George Campbell Jr. asked the entire college community to participate in a collective process of strategic planning for the future of the institution. The four faculties, along with students, staff and invited alumni, conducted analyses of the academic programs and administrative units of the school, clarifying guiding principles, noting traditional areas of strength and identifying areas of concern. Individual reports were submitted to the President through the winter of 2000-2001. That Spring, the Academic Council gathered for three days of intensive discussions to integrate the ideas from the portfolios and to recommend institutional priorities.

The resulting strategic planning document, “Transcending Boundaries” (appendix 4:1, strategic planning document 2001-2006) has served as the basis for much of The Cooper Union’s work in terms of budgeting, administrative organization and program assessment for the last five years. The President and the Board of Trustees have used “Transcending Boundaries” as a framework for their ongoing attention to institutional priorities, planning and resource development. In addition, all units at The Cooper Union undertook substantial cost reductions in 2002 and 2003 as part of a four-point plan to eliminate the structural deficit, and funding levels in current dollars for the academic programs have only recently returned to their 2002 level. Such continuous fiscal restraint has occasioned a detailed examination of all expenditures and operations.

This chapter focuses on The Cooper Union’s formal and informal assessment methods that shape decision making at the institutional level: the organized, documented and sustained assessment process; how institutional missions, goals and plans are defined and achieved; and how accreditation standards are met and exceeded. Methods and measures of institutional assessment specific to other standards appear in other chapters of this self-study. Chapter two on institutional resources, for example, includes significant additional assessment information regarding finances, technological resources and facilities/master planning; sections of chapters six and seven, relating to Middle States standards 10, 11 and 14, assess vital elements of institutional effectiveness regarding the faculty and student learning outcomes.

As “Characteristics of Excellence” makes clear, all institutions of higher education should possess a clearly stated, compelling mission supported by “clearly articulated institutional, unit-level, and program-level goals that encompass all programs, services, and initiatives and are appropriately integrated with one another.” The Cooper Union is a small institution with a clear mission, and all members of the community are deeply invested in ensuring the future of the school and the excellence of its programs. While reflecting institutional strategic
goals, all academic and administrative units develop their own assessment plans according to their disciplinary standards. Early in the research phase of this self-study, the Steering Committee asked all Deans and Directors with unit level oversight to review their area’s mission, clearly describe their program and detail all assessment measures in place. All units, with the exception of Buildings and Grounds and CURF (both were changing Directors) complied and their reports may be found both in the Document Room and in the Middle States Electronic Resource. Table 6 below includes the results of the evaluation of college units undertaken by the Steering Committee.

Table 6
Evaluation of Institutional Assessment by Unit

<table>
<thead>
<tr>
<th>UNIT</th>
<th>WEAK</th>
<th>ACCEPTABLE</th>
<th>STRONG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Affairs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Assessment Methods</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business Office</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Assessment Methods</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Admission</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Assessment Methods</td>
<td>x</td>
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<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td><strong>Student Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Assessment Methods</td>
<td>x</td>
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</tr>
<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
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<tr>
<td><strong>Library</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
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<tr>
<td>Evidence of Assessment Methods</td>
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<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Continuing Education</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>Evidence of Assessment Methods</td>
<td>x</td>
<td></td>
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<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td><strong>Computer Center</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of Mission and Objectives</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Assessment Methods</td>
<td>x</td>
<td></td>
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<tr>
<td>Evidence of Loop-Closing Procedures</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>UNIT</td>
<td>Clarity of Mission, Objectives and Student Learning Outcomes</td>
<td>Evidence of Assessment Methods</td>
<td>Evidence of Loop-Closing Procedures</td>
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<td>-----------------------------</td>
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</tr>
<tr>
<td>Art</td>
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<tr>
<td>Architecture</td>
<td></td>
<td>x</td>
<td>x</td>
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<tr>
<td>Engineering</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Humanities and Social Services</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Math</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Center for Writing and Language Arts</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Saturday Outreach Program</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Design Center</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Architecture Archive</td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
Units whose reporting standards have been found wanting in the above evaluation by the Steering Committee have been notified and are working directly with the Director of Assessment to implement the necessary changes in procedures and reporting.

NEW STRATEGIC PLANNING

In November 2006, the President charged all constituents of the school with developing a new strategic plan. Therefore, while preparing reports on mission, program and assessment for this self-study, all units were also asked to prepare portfolios for their vision of future goals and directions. The concurrence of the self-study and strategic planning efforts encouraged a high level of integration between the analysis of “local” programs and procedures and forward-looking, institution-wide planning. To take full advantage of this, in May 2007, the Steering Committee met with the Academic Council to review and discuss, over the course of an afternoon, an initial draft of the 2007 strategic plan. The Steering Committee provided guidance regarding the number of goals, the character and specificity of objectives and the nature of assessment requirements. (Appendix 4:2, draft strategic plan, dated May 7, 2007; appendix 4:3, communications from the Steering Committee regarding plan.)

The new 2007 strategic plan—which appropriately integrates program-level planning and assessment with the processes of the academic and administrative units—identifies the following four goals:

1. Ensure faculty strength by appropriately expanding the size of the faculty and by providing effective, ongoing professional development for faculty members.
2. Continuously renew academic programs and curricula, while expanding the focus on interdisciplinary and international studies.
3. Develop an information technology infrastructure that can evolve to meet all of the institution’s academic and administrative needs.
4. Establish the administrative, financial and physical resources necessary to sustain The Cooper Union’s academic and philanthropic mission over the long term.

For each goal, the strategic planning document 2007-2012 also includes a description of the assessments that led to the goal, strategies to achieve that goal (with “ownership”) and performance measures to be used to measure outcomes.
CHARACTERISTICS OF INSTITUTIONAL ASSESSMENT

Data/Information/Knowledge Is a Strategic Resource for Planning and Performance Improvement.
The following factors determine the kind of data needed for planning and performance improvement:

- Strategic and planning considerations.
- Fulfillment of the needs of our constituents.
- Consistency with mission, educational objectives and outcomes.
- Solid demonstrable findings from environmental scanning.
- Results from the assessment process—assessment and continuous improvement of our assessment process.

Our Assessment Process Is Systematic, Sustained and Makes a Sufficient Use of Multiple Qualitative and/or Quantitative Measures.
In our assessment process, we have sought to use multiple qualitative and/or quantitative measures that:

- **Maximize the use of existing data and information.** The Inventory of Institutional Reports (see Self-Study Design) shows that The Cooper Union produces more than 150 reports that are used in various decision-making processes at various levels.

- **Clearly and purposefully relate to the goals they are assessing.** Our research questions are closely aligned with institutional, program, unit and course level goals and student learning outcomes.

- **Are of sufficient quality that results can be used with confidence to inform decisions.** We consider our data to be valid and reliable because a) we always obtain very high response rates in our surveys, b) we perform statistical significance tests, c) we submit the data for external, independent evaluation and d) we use multiple assessment measures for each outcome.

We Produce Information via Data Analysis.

- Data are analyzed so that we present and distribute reports with tables and graphs showing percentages for each response category and program, number of responses, and mean scores in the case of Likert scales. We run statistical significance tests.

- The analysis of qualitative data proceeds according to a research and analysis plan and usually involves: a) reporting on performances appraised, b) discussion with stakeholders and c) occasional external review of data.

- Longitudinal analysis is more akin to the reasons we collect data than to a point-in-time analysis. Nevertheless, when a clear cause for concern arises from the data analysis, we address that concern.
Assessment Processes Have the Collaborative Support of Faculty and Administration.
The Assessment Office is responsible for indirect assessment. The faculty and other decision-making bodies in the college (Board of Trustees, President’s Office, Academic Council, unit heads) are responsible for direct assessment and evaluation. This division of labor ensures that data collected are disseminated to the relevant parties and that it is those parties who can make decisions that actually review assessment results and implement loop-closing procedures.

Support in the Dissemination of Assessment Results
• Dissemination by the Office of Assessment includes:
  • Electronic consultation with and dissemination to the faculty via email.
  • Meetings with the Deans and Associate Deans.
  • Informal meetings with individual faculty members.
  • Responding to the President’s requests for information and results.
  • Reporting to the Vice President for Business.
  • Responding to specific questions and concerns.
  • Distributing Environmental scanning results.
  • Distributing published assessment papers.
  • Sharing best practices analyses.

Dissemination by the President, Deans and Unit Heads is as follows:
• The Administrative Deans report to their unit’s staff and discuss results in Academic Council meetings. The Academic Deans report on assessment in faculty and administrative meetings.
• The President of The Cooper Union reports on survey results and assessment during his annual State of The Cooper Union Address. He also shares assessment information and results with the Board of Trustees, the Academic Council and The Cooper Union community-at-large.
• Unit heads other than Deans also report on results to their staff and discuss results with other unit heads.

Support and Involvement in the Loop-Closing Procedures for Program Improvement
Each unit chooses a specific approach to data interpretation that is contingent upon the specific question under analysis and the nature and purpose of the survey or data set in question. The Assessment Office suggests general guidelines but does not lead on data interpretation or decision-making for program improvement. Causes for concern in survey results are examined by faculty, but do not necessarily mean that action needs to be taken because survey results a) are indirect measures of student achievement and b) are judged in conjunction with other assessment results, especially with results coming from direct
assessment measures. The experience accumulated for the past few years will allow us to set reasonable targets for the performance indicators reflected in survey questions. It is not possible to reasonably establish reachable targets before gathering results for a period of time.

**Student Involvement in the Assessment Process**

At The Cooper Union, students actively participate in the assessment process by offering specific proposals to measure the quality of their education. For example, in 2001 the Office of Assessment was approached by representatives of the Student Council who wanted to develop a questionnaire to assess instruction quality. The Office of Assessment worked together with students on the design of the survey and the data analysis. The report produced is available. In addition, in the Spring of 2005, the representatives of the Student Council launched a new initiative to provide feedback to their professors about courses and programs. Students are generally informed about our continuing assessment effort because the Assessment Office shares with the Student Council some of the assessment information and maintains a dialogue with this student organization concerning assessment. In addition, the Deans hold an open forum with students to address student concerns. There are also monthly formal meetings between the Student Council and the various Deans.

**Our Assessment Processes Have Clear and Realistic Guidelines and a Timetable, Supported by Appropriate Investment of Institutional Resources.**

Departments, schools and programs are normally reviewed at intervals that coincide with the drafting of a new strategic plan, but this schedule may be accelerated in individual cases at the discretion of the deans. Where possible and desirable, academic program reviews are conducted to coincide with accreditation and other externally-imposed reviews or with reviews for new degree programs. In addition, the Deans’ review process by an external panel of experts takes place every five years.

**We Can Provide Evidence That Assessment Results Are Shared, Discussed and Used in Institutional Planning, Resource Allocation and Renewal to Improve and Gain Efficiencies in Programs, Services and Processes, including Activities Specific to the Institution’s Mission (e.g., Service, Outreach, Research).**

The President and Vice Presidents of Finance and External Affairs formally review progress on The Cooper Union’s strategic plan at least twice each year. Each summer, prior to the start of the school year, the President holds a two-day meeting for college leadership. On the first day the Vice Presidents review progress in their respective units toward strategic goals made during the previous year and outline major objectives for the year to come. Discussions are informed by a set of measures that have been selected to mark The Cooper Union’s status on important indicators of our relative success. The discussion centers on how each school, college, and the Library collectively contribute to the college’s strategic plan. The open and candid discussions taking place across these two days provide an excellent review and evaluation of how well the college is achieving its aims.
We Periodically Evaluate the Effectiveness and Comprehensiveness of the Institution’s Assessment Process.

Although no formal review of The Cooper Union’s assessment process in place, the institution nonetheless periodically reviews the effectiveness and comprehensiveness of the process. The review is based on tacit knowledge and communities of practice at the college. The Director of Assessment receives frequent, one-on-one feedback from faculty, the Department Chairs, the Deans and Associate Deans, the Vice President for Business and the President. The following changes to the assessment program are a result of the continuous review of the assessment program at The Cooper Union.

- Entry and Exit Surveys were modified in 2002 to address the issue of institution-wide learning outcomes.

- All academic and administrative units have modified (in 2006) their program objectives to address program and curriculum changes after 2001, and to align assessment standards with those of ABET (Accrediting Board for Engineering and Technology), NASAD (National Association of Schools of Art and Design) and NAAB (National Architectural Accreditation Board), and with Middle State’s new approaches and definitions.

- We will register to participate in the 2009 National Survey of Student Engagement (NSSE).

- We will obtain relevant comparative data on our students through this survey.

- We will ask the Mellon Foundation to give us access to their College and Beyond database to obtain comparative data on our alumni.

- In addition to preparing an overarching institutional assessment plan, the various institutional and academic units have developed assessment plans during 2006.

- After closing the loop in 2005-6, a number of changes are being implemented to our assessment instruments, including drafting of new questions (on student-learning styles, student values, socio-economic background, the extent to which the college’s education contributed to their learning outcomes) and the elimination of now irrelevant questions.

Examples of Data Collected

A representative selection of our institutional research surveys, reports and studies can be found in the Institutional Research section of the Middle States Electronic Resource. The following are examples of typical data-gathering instruments used by The Cooper Union.

- **Course Questionnaires.** The procedure for data collection from individual courses is manual. Instructors distribute the questionnaires in the classroom, students complete them, and instructors give the completed forms to the Assessment Office where the data are entered into a spread sheet for analysis.

- **Exit Survey.** The Exit Survey, conducted annually during the Spring semester among senior students, elicits information about student life, student experiences and student satisfaction. The high response rates (usually above 80 percent of the senior class) ensure data validity.
- **Alumni Survey.** A comprehensive Alumni Survey is conducted every five years; it targets approximately 5,000 alumni. In its last edition, in 2005, we obtained an unprecedented 40 percent response rate and extremely positive results. The next Alumni Survey will be conducted in 2010 and will include additional questions.

- **Case Studies/Qualitative Analysis.** The procedure for gathering qualitative data is inductive research via participant observation (ethnography) and/or semi-structured, in-depth interviews. The researcher interviews students and/or observes student performances and records his or her observations according to a research and analysis plan. Instead of testing ideas, the researcher structures his or her ideas based on the subjects themselves.

- **Best Practices Analysis.** The Cooper Union commissions an outside research organization to produce best practice reports on relevant topics in higher education. The list of reports is appended, and the reports themselves are available for review. The reports are received by the Office of Assessment and disseminated internally among The Cooper Union community.

**An Example of Institutional Assessment: “The Strengths and Weaknesses Report”**

The “Strengths and Weaknesses Report” (available at 2.1.5 of the Institutional Research section of the Middle States Electronic Resource and in the Document Room) represents an easily digestible, graphical account of The Cooper Union’s strengths and weaknesses, as illustrated by a 2005 Alumni Survey series (2.1.2 of the Institutional Research section of the Middle States Electronic Resource) and an Exit Survey administered each year from 2000 to 2006 (2.1.4 of the Institutional Research section of the Middle States Electronic Resource). The Alumni Survey garnered responses from Cooper Union alumni with matriculation years of between 1951 and 2000; it is particularly useful for assessing long-term changes in opinion regarding The Cooper Union’s numerous offerings. The Exit Survey is narrower in chronological focus, but it presents a fresh account of student experiences at The Cooper Union and covers a more expansive array of topics pertaining to student life and college services.

Cooper Union alumni provided some of the Alumni Survey’s highest ratings for questions pertaining to the quality of their educational experiences. Quality of courses and faculty, access to faculty outside class and overall quality of education received weighted mean ratings at various intervals between “good” and “very good.” Alumni also considered The Cooper Union’s physical amenities—access to facilities, Library and academic workspaces—either “good” or significantly above average, and ratings remained mostly static between matriculation-year cohorts. Housing, the lowest-rated indicator of the entire study, saw persistent improvement in ratings across the surveyed period, with a peak from 1991-1995. Questions pertaining to career preparation show that alumni felt they received well-above-average career preparation and professional development. Certain aspects of the academic experience demonstrated higher ratings for each successively earlier cohort. For example, “career preparation” and “professional development” generally elicited higher ratings from alumni who enrolled at earlier dates. Such positive trends likely reflect that alumni, as they gain life experience, grow to better understand the overall quality, value and positive impact of The Cooper Union experience, an insight that may elude younger graduates.
When asked to rate the acquisition of particular competencies, alumni rated “the ability to think creatively” and “the disposition for life-long learning” most highly. “Life-long learning” received a nearly identical (and positive) weighted mean rating. Competency ratings in general experienced a sharp increase and peak in the 1971-1980 cohort. Both the “awareness and understanding of other cultures” and “commitment to social responsibility” questions, although still above average, were least highly rated. Finally, the vast majority of Cooper Union alumni would recommend the school to prospective students.

In the Exit Survey, graduating students rated their courses and professors highly. Respondents rated the variety of course offerings in their disciplines favorably, and ratings improved gradually from 2004 to 2006. Of all the questions pertaining to academics, students provided the highest weighted mean rating to their professors’ subject knowledge, an indicator that has received progressively higher ratings from 2003 to 2006. “Professors’ commitment to students” and “quality of teaching” also received high marks, although ratings for each have varied widely across the survey period. Academic facilities received high ratings for all schools. Ratings for library-related questions improved over the 2003–2006 period, while Computer Center-related responses, although still positive, declined from 2002 to 2006.

Students indicated that they were largely satisfied with the opportunities to socialize while at The Cooper Union, with engineering students providing the highest ratings. With regard to students’ social lives, “interaction between schools” was the only category to draw a weighted mean that indicated dissatisfaction. “Interaction between students” was viewed more positively, indicating a medium level of satisfaction. Ratings for “student activities” questions, on average, indicated average or above-average levels of satisfaction. Ratings for “health and well-being” questions fell to slightly below-average levels over the 2002-2004 period, with sharp increases following across 2004-2006. Respondents were generally “satisfied” with safety in the surrounding neighborhood and with campus security. Finally, with regard to student services, respondents were generally satisfied with the Center for Writing and Language Arts, financial aid and career counseling. Housing referrals drew the lowest scores, indicating slightly dissatisfied responses.

When asked to rate the degree to which they had acquired certain competencies (rated on a five-point scale and asked of respondents from only 2003 to 2006), graduating students provided near-“to a great extent” ratings for the following competencies: “the ability to think creatively”; “the ability to handle information resources, to collect and interpret data”; and “the awareness of and disposition for life-long learning.” Other highly-rated indicators, such as “the ability to talk and write effectively,” “the ability to lead and manage projects” and “the ability to effectively present findings to an audience” saw ratings decline steadily from 2004 to 2006. Conversely, three of the least highly-rated competencies—“the awareness and understanding of other cultures,” “the appreciation of humanistic values,” and “the awareness
of the importance of public service”—saw steady ratings increases during the 2004–2006 period. It should be noted that even the least highly-rated competencies drew responses that were above-average, hovering around 3.3 to 3.5. Like the alumni respondents, The Cooper Union’s graduating students overwhelmingly reported that they would recommend The Cooper Union to prospective students.

**Selected Survey Results for Middle States Standard 7**

Tables 7 and 8 below shows results from the Exit Surveys regarding institutional strengths and institutional concerns, respectively. Mean scores are weighted averages 2000-2006.

### Table 7

**Exit Surveys, Institutional Strengths, 2000-2006**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean Rating</th>
<th>% of 3's, 4's</th>
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</thead>
<tbody>
<tr>
<td>Professors’ knowledge</td>
<td>3.73</td>
<td>76.38%</td>
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<tr>
<td>Safety in the neighborhood</td>
<td>3.70</td>
<td>77.33%</td>
</tr>
<tr>
<td>Security on campus</td>
<td>3.58</td>
<td>72.97%</td>
</tr>
<tr>
<td>Professors’ commitment to students</td>
<td>3.46</td>
<td>63.59%</td>
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<tr>
<td>Financial aid</td>
<td>3.43</td>
<td>60.50%</td>
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<tr>
<td>Shop facilities</td>
<td>3.40</td>
<td>60.99%</td>
</tr>
<tr>
<td>Quality of teaching</td>
<td>3.39</td>
<td>62.21%</td>
</tr>
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<td>Center for Writing and Speaking</td>
<td>3.44</td>
<td>63.06%</td>
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<tr>
<td>Student groups</td>
<td>3.30</td>
<td>60.28%</td>
</tr>
<tr>
<td>Great Hall performances</td>
<td>3.28</td>
<td>58.63%*</td>
</tr>
</tbody>
</table>

### Table 8

**Exit Surveys, Institutional Concerns, 2000-2006**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean Rating</th>
<th>% of 3’s, 4’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study areas</td>
<td>2.85</td>
<td>42.00%</td>
</tr>
<tr>
<td>Job placement</td>
<td>2.85</td>
<td>40.50%</td>
</tr>
<tr>
<td>Library schedule</td>
<td>2.80</td>
<td>45.25%</td>
</tr>
<tr>
<td>Cafeteria</td>
<td>2.76</td>
<td>38.29%</td>
</tr>
<tr>
<td>Lounge spaces</td>
<td>2.76</td>
<td>36.83%</td>
</tr>
<tr>
<td>Medical services</td>
<td>2.74</td>
<td>34.25%</td>
</tr>
<tr>
<td>Registration</td>
<td>2.70</td>
<td>38.33%</td>
</tr>
<tr>
<td>Housing referrals</td>
<td>2.59</td>
<td>31.48%</td>
</tr>
<tr>
<td>Interaction between schools</td>
<td>2.44</td>
<td>25.04%</td>
</tr>
</tbody>
</table>
Table 9 below shows results from the 2005 Alumni Survey.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Very Bad</th>
<th>Bad</th>
<th>Average</th>
<th>Good</th>
<th>Very Good</th>
<th>No response</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to facilities</td>
<td>1659</td>
<td>0.20%</td>
<td>3.20%</td>
<td>17.50%</td>
<td>36.50%</td>
<td>42.60%</td>
<td>40</td>
<td>4.18</td>
</tr>
<tr>
<td>Library</td>
<td>1659</td>
<td>1.20%</td>
<td>6.70%</td>
<td>30.10%</td>
<td>33.50%</td>
<td>28.60%</td>
<td>42</td>
<td>3.82</td>
</tr>
<tr>
<td>Career Preparation</td>
<td>1659</td>
<td>6.20%</td>
<td>11.60%</td>
<td>26.20%</td>
<td>30.80%</td>
<td>25.10%</td>
<td>36</td>
<td>3.57</td>
</tr>
<tr>
<td>Professional Development</td>
<td>1659</td>
<td>4.40%</td>
<td>12.30%</td>
<td>34.30%</td>
<td>27.80%</td>
<td>21.30%</td>
<td>59</td>
<td>3.49</td>
</tr>
<tr>
<td>Housing</td>
<td>1659</td>
<td>36.50%</td>
<td>28.70%</td>
<td>22.10%</td>
<td>8.90%</td>
<td>3.80%</td>
<td>354</td>
<td>2.15</td>
</tr>
<tr>
<td>Social Life</td>
<td>1659</td>
<td>7.20%</td>
<td>21.70%</td>
<td>34.70%</td>
<td>23.80%</td>
<td>12.50%</td>
<td>80</td>
<td>3.13</td>
</tr>
<tr>
<td>Studio/Classroom/Lab Space</td>
<td>1659</td>
<td>1.20%</td>
<td>7.70%</td>
<td>31.50%</td>
<td>38.70%</td>
<td>20.90%</td>
<td>53</td>
<td>3.7</td>
</tr>
<tr>
<td>Overall Quality of Education</td>
<td>1659</td>
<td>0.10%</td>
<td>0.70%</td>
<td>7.70%</td>
<td>30.90%</td>
<td>60.60%</td>
<td>28</td>
<td>4.51</td>
</tr>
</tbody>
</table>

**Institutional Loop-Closing**

The results of Exit and Alumni Surveys shown in Tables 7, 8 and 9 were disseminated to the Deans, the faculty, the Academic Council, and the President’s Cabinet. Most of these results confirm anecdotal evidence gathered over the years; some weaknesses have been referenced in previous Middle States self-studies. Concerns about study areas, lounge spaces and interaction between the schools will hopefully be addressed in the construction of the new academic building, but will need to be revisited once the building is in operation. The Library is aware of student dissatisfaction with evening hours of operation and seeks additional funding to extend hours. Medical services are examined in chapter five of this self-study. Job placement and housing referrals are viewed as complaints regularly aired by students but not beyond the norm.

**Suggestions and Recommendations**

This self-study:

*Recommends* the creation of an institution-wide Planning and Assessment Council to ensure that collected data are systematically reviewed and used for program improvement according to institutional goals and priorities. The Planning and Assessment Council would be composed of faculty and staff and, working with the Director of Institutional Research and Assessment, would conduct annual reviews of the main institutional goals as established in the strategic plan.
Chapter 5
Admissions, Retention and Student Support Services: Middle States Standards 8 and 9

Although the history of the mission of The Cooper Union sets the institution apart from much of higher education in the United States, the character and qualities of the student body are the most vital component to its continuing success and excellence. As the first point of contact for prospective students, The Office of Admissions and Records and Registrar plays a central role in their advisement and recruitment. The office solicits the required information to process applications to each of the three schools of The Cooper Union, and upon matriculation, records data specific to registration and academic transcripts of each student.

ADMISSIONS

The foundational principle of the admissions process at The Cooper Union is review and/or advisement by faculty committees of the three schools. All documents that comprise the application file are read. In the School of Architecture and in the School of Art, portfolios and home tests are submitted to intensive review by the faculty in consultation with student and alumni reviewers. Since admission is the first act of student assessment, the process is further evaluated in chapter seven.

The Dean of Admissions and Records and Registrar is responsible for the completion of approximately 100 surveys annually. (Appendix 5:1, list of reports in Documents Room.) The Dean creates several internal reports that are shared across the entire academic community (First-Year Admissions Summary, Enrollment Report and Transfer Admissions Summary) and serve to fulfill data requests from local, state, federal and proprietary agencies. From looking at the internal reports, one can draw the following conclusions:

Geographic Distribution
The geographic distribution of the incoming class has remained fairly consistent over the past decade, as shown in Table 10 below. The recruitment efforts remain focused on school districts in the New York City metropolitan area, with some emphasis placed on specialized schools of science, math, and art across the country.
Table 10

Geographic Distribution of Incoming Classes, 1997–2006

<table>
<thead>
<tr>
<th>Year</th>
<th>NY State</th>
<th>NY City</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>59%</td>
<td>43%</td>
</tr>
<tr>
<td>2005</td>
<td>60%</td>
<td>39%</td>
</tr>
<tr>
<td>2004</td>
<td>49%</td>
<td>37%</td>
</tr>
<tr>
<td>2003</td>
<td>54%</td>
<td>35%</td>
</tr>
<tr>
<td>2002</td>
<td>58%</td>
<td>44%</td>
</tr>
<tr>
<td>2001</td>
<td>57%</td>
<td>38%</td>
</tr>
<tr>
<td>2000</td>
<td>43%</td>
<td>30%</td>
</tr>
<tr>
<td>1999</td>
<td>52%</td>
<td>33%</td>
</tr>
<tr>
<td>1998</td>
<td>53%</td>
<td>35%</td>
</tr>
<tr>
<td>1997</td>
<td>58%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Ethnic Distribution

The percentage of underrepresented minority students has increased in each of our incoming classes since 2003. See Table 11 below. This trend is a direct result the collaborative efforts of realizing an institutional priority agreed in Academic Council and enthusiastically endorsed by the Dean of Admissions and Records and Registrar, and the admissions committees of the three schools.

Table 11

Ethnic Distribution of Incoming Classes, 1997–2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Asian American</th>
<th>Black</th>
<th>Latino</th>
<th>Native American</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>26%</td>
<td>8%</td>
<td>14%</td>
<td>1%</td>
</tr>
<tr>
<td>2006</td>
<td>29%</td>
<td>6%</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>2005</td>
<td>28%</td>
<td>6%</td>
<td>10%</td>
<td>1%</td>
</tr>
<tr>
<td>2004</td>
<td>27%</td>
<td>5%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>2003</td>
<td>30%</td>
<td>6%</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>2002</td>
<td>20%</td>
<td>5%</td>
<td>11%</td>
<td>1%</td>
</tr>
<tr>
<td>2001</td>
<td>29%</td>
<td>6%</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>2000</td>
<td>26%</td>
<td>5%</td>
<td>7%</td>
<td>1%</td>
</tr>
<tr>
<td>1999</td>
<td>29%</td>
<td>5%</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>1998</td>
<td>27%</td>
<td>6%</td>
<td>10%</td>
<td>1%</td>
</tr>
<tr>
<td>1997</td>
<td>23%</td>
<td>7%</td>
<td>9%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Gender Distribution
Gender distribution for the incoming class has remained stable over the past ten years, as shown in Table 12 below.

Table 12
Gender Distribution of Incoming Classes, 1997–2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>2006</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>2005</td>
<td>66%</td>
<td>34%</td>
</tr>
<tr>
<td>2004</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>2003</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td>2002</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>2001</td>
<td>65%</td>
<td>35%</td>
</tr>
<tr>
<td>2000</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>1999</td>
<td>67%</td>
<td>33%</td>
</tr>
<tr>
<td>1998</td>
<td>67%</td>
<td>33%</td>
</tr>
<tr>
<td>1997</td>
<td>61%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Yield
The yield has improved slightly over the past several years due to a variety of initiatives, for example, school-wide open houses, alumni/mentor programs, and increased contact with admitted students. See Table 13, below. These efforts were discussed in the Academic Council and with President Campbell at strategic planning meetings.
Table 13
Summary Table of Key Measures Relative to Association of Independent Technological Universities (AITU), 1997–2007

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Measurement</th>
<th>Low Value</th>
<th>High Value</th>
<th>CU Value</th>
<th>CU Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>% 1st year enrollment over 1st year offers</td>
<td>18.1</td>
<td>77.6</td>
<td>77.6</td>
<td>1</td>
</tr>
<tr>
<td>SAT Scores (verbal)</td>
<td>Median</td>
<td>520</td>
<td>730</td>
<td>670</td>
<td>5</td>
</tr>
<tr>
<td>SAT Scores (math)</td>
<td>Median</td>
<td>570</td>
<td>760</td>
<td>760</td>
<td>1 (tie)</td>
</tr>
<tr>
<td>Retention Rates (Overall)</td>
<td>%</td>
<td>74.8</td>
<td>100</td>
<td>93</td>
<td>6</td>
</tr>
<tr>
<td>4/5 years Graduation Rate</td>
<td>%</td>
<td>36.1</td>
<td>88</td>
<td>79</td>
<td>4</td>
</tr>
<tr>
<td>6 years Graduation Rate</td>
<td>%</td>
<td>50</td>
<td>93</td>
<td>85</td>
<td>4</td>
</tr>
<tr>
<td>Selectivity</td>
<td>% 1st year offers over 1st year applicants</td>
<td>10</td>
<td>84.3</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

AITU Institutions: Carnegie Mellon, Case Western, Clarkson, Drexel, Embry Riddle, Harvey Mudd, Illinois Institute of Technology, Kettering, MIT, Olin, Rochester Institute of Technology, Rose Hulman, Stevens Institute of Technology, Webb and Worcester Polytechnic. (Appendix 5:2: charts of the six parameters benchmarked with this peer group.)
### Table 14

**Ten-Year Review of High School Grades and SAT I Mean Scores, 1997–2007**

<table>
<thead>
<tr>
<th>Year</th>
<th>High School Graduation Rates</th>
<th>Graduation Rates in 4 years</th>
<th>Graduation Rates in 5/6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>95</td>
<td>1351</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>95</td>
<td>1340</td>
<td>93</td>
</tr>
<tr>
<td>2005</td>
<td>94</td>
<td>1370</td>
<td>97</td>
</tr>
<tr>
<td>2004</td>
<td>94</td>
<td>1390</td>
<td>94</td>
</tr>
<tr>
<td>2003</td>
<td>94</td>
<td>1370</td>
<td>94</td>
</tr>
<tr>
<td>2002</td>
<td>94</td>
<td>1340</td>
<td>94</td>
</tr>
<tr>
<td>2001</td>
<td>95</td>
<td>1330</td>
<td>90</td>
</tr>
<tr>
<td>2000</td>
<td>95</td>
<td>1340</td>
<td>92</td>
</tr>
<tr>
<td>1999</td>
<td>95</td>
<td>1380</td>
<td>90</td>
</tr>
<tr>
<td>1998</td>
<td>95</td>
<td>1320</td>
<td>92</td>
</tr>
<tr>
<td>1997</td>
<td>95</td>
<td>1315</td>
<td>89</td>
</tr>
</tbody>
</table>

---

**Academic Profile**

**High School Grades and SAT I Mean Scores.**

The results of the ten-year review shown in Table 14 below reveals a relatively stable profile. The verbal and math median scores suggest that The Cooper Union is highly selective relative to others in the peer group.

**First Year Retention Rates and Graduation Rates.**

Graduation rates are reported in the last two columns of Table 14, above. The first for students graduating on-time (Art/Engineering, 4 years; Architecture, 5 years) and in the second column (Art/Engineering, 5 years; Architecture, 6 years). The five- and six-year graduation rate does not reflect additional academic semesters at The Cooper Union to complete degree requirements but rather interruptions for professional development and/or international exchange. Owing to improved academic advisement, more careful admissions-application review and earlier degree audits (specifically in the last two to three years), there have been increases in both first year retention and graduation rates.

**Selectivity in Admissions**

The Cooper Union has become more selective as applications have increased in the last decade. There has also been a rise in female applicants. See Table 15 on the following page.
Table 15
Selectivity and Gender Representation In Admissions, 1997–2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Apps</th>
<th>Men</th>
<th>Women</th>
<th>% Admitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>2551</td>
<td>1383</td>
<td>1168</td>
<td>11%</td>
</tr>
<tr>
<td>2006</td>
<td>2600</td>
<td>1375</td>
<td>1225</td>
<td>10%</td>
</tr>
<tr>
<td>2005</td>
<td>2301</td>
<td>1285</td>
<td>1016</td>
<td>13%</td>
</tr>
<tr>
<td>2004</td>
<td>2367</td>
<td>1361</td>
<td>1006</td>
<td>12%</td>
</tr>
<tr>
<td>2003</td>
<td>2414</td>
<td>1250</td>
<td>1164</td>
<td>12%</td>
</tr>
<tr>
<td>2002</td>
<td>2041</td>
<td>1262</td>
<td>779</td>
<td>14%</td>
</tr>
<tr>
<td>2001</td>
<td>2179</td>
<td>1153</td>
<td>1026</td>
<td>13%</td>
</tr>
<tr>
<td>2000</td>
<td>2210</td>
<td>1112</td>
<td>1098</td>
<td>13%</td>
</tr>
<tr>
<td>1999</td>
<td>2216</td>
<td>1257</td>
<td>959</td>
<td>13%</td>
</tr>
<tr>
<td>1998</td>
<td>2294</td>
<td>1283</td>
<td>1011</td>
<td>13%</td>
</tr>
<tr>
<td>1997</td>
<td>2173</td>
<td>1191</td>
<td>982</td>
<td>13%</td>
</tr>
</tbody>
</table>

Transfer Students
The Cooper Union admits a limited number of transfer students each year depending on availability of space within classes and studios. Typically, 5 to 10 students are admitted each to architecture and fine arts and 10 to 15 to engineering. Admission requirements for transfers are at least as rigorous as for first year applicants. Transfer students enter from a wide range of institutions—public, private, two- and four-year, in addition to international colleges and universities. All transfer students are required to spend a minimum of two years at The Cooper Union to meet graduation requirements. (Appendix 5:2, 2007, transfer summary report.)

Recruitment
Retention rate, yield, geographical, gender and ethnic distributions are all dependent on active recruitment. The Cooper Union, with its full-tuition scholarship for every student and its specialized curricula, is in a unique position. The institution attracts many more applications from students (from among the top 10 percent in the nation) than places available for them. This situation demands two kinds of vigilance:

- A particular obligation to attract students best suited for the professional programs offered, and

- A continuing challenge to enroll the best applicants in the face of financial leveraging by other institutions with scholarships that cover a student’s living expenses as well as tuition.
Ongoing success therefore depends upon attracting students with both a passion and aptitude for their field of study as well as providing a competitive level of support. The active recruitment of prospective students is vital to The Cooper Union’s maintaining its academic profile.

The Office of Admissions views all external contact as a form of recruitment. The message is defined through word of mouth, the use of the The Cooper Union website, search engines, student-oriented websites, online chats, brochures, conferences, college fairs, high school visits, portfolio days, alumni, open houses, on-campus events, tours and tailored application procedures. In addition to visits to New York City schools, The Cooper Union participates in the New York City NACAC, Big Apple Fairs and high school college fairs. Every student in New York City has the opportunity to visit with a Cooper Union Admissions representative. The Cooper Union also targets competitive high schools on Long Island, in the northern suburbs and New Jersey.

Prospective students are made aware of The Cooper Union’s size, location and specialized curriculum. This information helps students decide whether or not the school is the right fit for them, aside from consideration of the full-tuition scholarship. When possible, the office uses faculty, students and alumni as a force multiplier for visits to schools with prospective applicants. Faculty and alumni of the School of Art participate in more than 20 recruitment events identified by the Admissions Committee in consultation with the Dean of Admissions.

Since 1998, the active geographical recruitment area has expanded to include schools in Boston, Chicago, the Southeastern Region, the Middle Atlantic and DC, particularly the NCSSSMST schools (National Consortium of Specialized Secondary Schools of Mathematics, Science, and Technology). Applications are submitted from a wide geographic range in the U.S. and abroad. Ten percent of the overall student body is international students.

In sum, The Cooper Union remains highly selective. The data from students who decline offers of admission frequently cite both the lack of access to affordable housing and the offer of better financial aid packages as pivotal to their decision.

In the next decade, the admissions application review and selection process will need institutional and financial support to expand ethnic diversity in the student body. The process of assessing applications is also under review. For example, applicants for the engineering school are currently assessed based on an algorithm that uses standardized test scores. This method needs to be examined as to whether it is still an affective method of judging potential success and, if necessary, modified or replaced as core to the applicant selection method.
The best and brightest students often are given better financial aid packages, including housing for the length of their studies at other institutions. Many colleges offer grant money to attract students, especially racially and ethnically diverse students and women engineering students. Senior level administration and Board of Trustees are aware of these issues and are seeking rational solutions for the next decade. Based on the work of this self-study and unit reports, the strategic plan contains a specific strategy to aid in the creation of more affordable housing for students.

**STUDENT SERVICES**

Upon admission to The Cooper Union, the students are offered a broad array of services designed to create a support structure and an atmosphere conducive to academic success and personal growth. The various student support services are shaped by The Cooper Union's mission and also by the needs of the changing student population.

In addition to the traditional student support offices and services, there are three critical areas that provide vital support services. They are 1) the academic and research assistance provided by the Library, 2) the academic and learning assistance provided by the Center for Writing and Language Arts and 3) academic program advising via the Offices of the Dean's of the four faculties. A review of the student support work of these entities is followed by 4) an analysis of student life at The Cooper Union.

**The Library**

The Library supports the degree-granting programs of the three professional schools as well as the curriculum of the Faculty of Humanities and Social Sciences. A professional librarian is always on duty during operating hours to assist students and faculty; subject-specialist librarians are available for consultation during weekday hours. Through membership in the Research Library Association of South Manhattan, which provides access and borrowing privileges to academic libraries in the near vicinity, the Library has been able to build outstanding collections in the areas of art, architecture, and engineering, while its patrons' research needs in the humanities, social sciences and the pure sciences are met by the extensive holdings of the consortium libraries.

Each Fall, every first-year student is required to attend a subject-specific introduction to library resources and research methods. In the fourth semester of the H&SS, there is a library session tailored to the particular needs of the section's subject. In addition to these formal sessions, the students' information literacy is continually reinforced and expanded through individualized sessions on specific research questions with a professional librarian at the reference desk.
While the Library collects various forms of statistics, student assessment of Library instruction has been mostly anecdotal. The librarians are often able to track the skills of individual students throughout their studies at The Cooper Union. There is a noticeable improvement in the quality of the abstracts and references of the Master's theses which correlates to the expanded opportunities for research instruction over the last several years. Also, the Library Student Advisory Committee, comprised of students from each school, meets each semester and allows the librarians to share information about the needs, desires and complaints of the student body. There is also a Library Committee, with membership from the four faculties, which provides the opportunity for the similar communication with the faculty at large.

There are plans underway to establish a more quantitative assessment of Library services through a baseline skills questionnaire, which first-year students would fill out during their orientation. The data collected from this survey would enable the librarians to tailor the introductory library instruction sessions more precisely to the student's actual needs, while providing a concrete basis for comparison to the competencies they gain as they advance in their studies. Additionally, the Library plans to add a more robust library portion to the survey given to graduating seniors.

The Center for Writing and Language Arts
Since the last Middle States visit, the Center for Writing and Language Arts has become a more important resource for students and for faculty at The Cooper Union. Individual tutoring and small group workshops are offered to assist students at all levels of work. In Fall 2002, the Center for Writing and Language Arts moved away from a peer-tutoring writing center model and began employing only highly qualified Writing Associates and Writing Fellows. Since that change, the average number of Writing Associates and Fellows on staff has been 11 per semester.

Efforts to improve awareness of the resources of the Center for Writing and Language Arts have increased primarily through class visits in all humanities core courses, as has identification of students in need of help. Students not fully prepared for college-level study were previously identified by diagnostic exams in core H&SS classes. Now, as part of orientation, a program on writing at the college level occurs in which students write diagnostic essays. Each essay is reviewed and ranked by a team from the center. Diagnostics identify students who might struggle with academic work. The assignment to specific H&SS sections and faculty supports these students. The Center for Writing and Language Arts also notifies the Deans of all three schools to those students who need extra support in reading and writing. (Appendix 5:4, last diagnostic exam and student sample.)
For the academic year Fall 2005–Spring 2006, the numbers of students served at the Center for Writing and Language Arts are shown on Table 15, below.

Table 16

Students Served at the Center for Writing and Language Arts, Fall 2005–Spring 2006

<table>
<thead>
<tr>
<th></th>
<th>Fall 2005</th>
<th>Spring 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
<td>304</td>
<td>372</td>
</tr>
<tr>
<td>Architecture</td>
<td>135</td>
<td>140</td>
</tr>
<tr>
<td>Engineering</td>
<td>560</td>
<td>436</td>
</tr>
<tr>
<td>Faculty/Staff</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

English as a Second Language
Students with English as a Second Language (ESL) issues were assigned to ongoing sessions with tutors who have expertise in this area. Identifying students with ESL has proven easier due to the implementation of the diagnostic writing assignment. Students who participate in the ESL option ideally meet with their tutors three times per week.

Developmental Writing Issues
Those students identified with development and writing issues are also assigned to ongoing sessions with senior associates meeting three times per week. These students are tracked through grades and regular reports prepared by writing associates that are sent to the students and appropriate faculty members.

Academic Program Advising: Assessment and Improvement
All three schools and the Faculty of Humanities and Social Sciences carefully monitor a student’s progress through the academic program and use advising strategies that are both consistent and student focused.

Advisement in Architecture
Every summer each student receives a personal “Credit Evaluation Summary” prepared by the Administrative Associate of the School of Architecture. This summary clearly outlines the year-by-year curriculum of the degree program and indicates all coursework successfully completed by the student and all requirements yet to be completed, including electives. The Credit Evaluation Summary is updated after the drop-add period of each semester and after grades have been recorded.
All incoming transfer students have an individual meeting with the School of Architecture Administrative Associate, who reviews the curriculum with each student and directs the student to the appropriate faculty for the determination of potential transfer credit. As transfer students will generally be completing their degree requirements in less than five years of study, these one-on-one curriculum reviews allow them to “jump start” the credit-transfer process and discuss other general policies and regulations of the school.

With the approval of the Dean, students in good academic standing may take a leave of absence from their studies for up to one year. Many students take advantage of this option for personal and family needs, to work or to travel and study abroad. Students will meet with the Associate Dean prior to the leave to discuss their goals and objectives for this time away from the school.

A distinguished and dedicated network of graduates in practice provides students with many opportunities for part-time work in a professional office. Graduates keep in close contact with the School of Architecture office, which often serves as an informal placement service matching current students with opportunities for mentoring and employment.

Advisement in Art
In the School of Art, the Academic Advisement Office is staffed by the Academic Advisor (a full-time faculty member) and an Associate. The office assesses the progress of students in fulfilling their credit distribution and graduation requirements. It also has evolved in the last 10 years not only as an academic support but also as the first stop for all student issues. The advisement process includes the following:

• The Advisor or Associate visits each Foundation section to explain the students’ academic responsibilities.

• Each student is advised before registration on an academic program that maintains appropriate progress to the degree. The student also receives a credit audit at advisement that outlines outstanding requirements.

• The Advisor or Associate signs all registration cards and drop-add slips, administers wait lists and tallies the class totals within the Advisement Office.

• The Academic Advisor evaluates all courses taken off campus and awards appropriate credit.

• The Advisement Office is the clearing house for all academic issues concerning students, faculty or classes.

• After the drop-add period, all student schedules, as they appear on agent, are reconciled with their respective credit audits; students are called in if there are discrepancies.
First Year Review
The Chair of Academic Standards Committee and the Academic Advisor convene Foundation reviews in the Fall semester with the Foundation faculty of each section to assess the potential and progress of each first-year student in the context of the student’s full program. Notes are kept at these meetings evaluating each student and may be used as reference later by the Academic Standards committee. This forum operates as a three-prong assessment tool for the student’s performance, the efficacy of the curriculum and the effectuation of the faculty.

Mid-Semester Review
The faculty members and student representative of the Academic Standards Committee, joined by the Academic Advisor, conduct mid-semester review meeting with students who have been identified by faculty as being in academic jeopardy. The purpose of this meeting is to serve as an academic safety net and to advise the student.

Advisement in Engineering
In Engineering, freshman advisement is an area of renewed effort. Students receive two types of advisement: individualized and group. In certain instances, specialized advisement is also required. Individualized advisement is primarily performed by the Freshman Advisor. Each face-to-face meeting with the adviser provides the student an opportunity to address many different issues, while the telephone and electronic mail serve to continue the dialogue. Each student is required to meet for advisement a minimum of once per semester. During the meeting, the Freshman Advisor will often ask other professors, staff and upperclassmen to provide additional contexts to discussions with students. Before registering, the Advisor or the Associate Dean must sign the student’s plan of study for the next semester.

Group advisement takes place in Freshman Seminars (ESC000). In ESC000, the Dean of Admissions and Records and his staff present to the freshmen, as do department Chairs and upperclassmen speaking about each major. This is especially helpful for students who are unsure of their choice of Engineering major.

A smaller number of students require specialized advisement. Students with unusual interests or advanced or delayed studies will meet with the Associate Dean of Engineering and the Freshman Advisor. Students with medical, social or physiological matters will be seen by the Associate Dean of Engineering, the Dean of Students and the Freshman Advisor. The Chairs of the departments and professors are available and actively assist students in quickly resolving difficult questions regarding their current and future studies.
As with any continuing process, measurement of outcomes directs change: by keeping track of aggregate changes to freshman schedules, problems and trends are noted. A useful measure for advisement is the number of students whose schedule is approved by Dean or Associate Dean of Engineering rather than the Freshman Adviser. Current numbers show that fewer than 10 students per semester require or desire special advisement by the Deans.

The Academic Standards Committee (ASC) is made up of a representative from each engineering department, representatives from mathematics, science and the humanities, two student representatives and the Associate Dean. Attending also are the Dean of Students and the Registrar. The committee regularly meets to monitor the progress of students in academic difficulty. The committee holds hearings, with the student present, to try to determine the cause of difficulty; for example, too heavy a load, personal motivation, time management, adverse circumstances. The committee suggests a course of remedial action. The committee makes recommendations about dismissal, probation or readmission and deals with cases of academic dishonesty, should they occur.

A second measure of freshman advisement outcomes is obtained through meetings of a student with members of the Academic Standards Committee. Students who are placed on academic probation for poor performance have an additional adviser within their major for the duration of their probation. This additional advisor carefully monitors the student’s progress through the semester to try to ensure acceptable standards of performance are reached.

As students progress into their sophomore year, one or more advisors are assigned from their specialist area(s). This generally means a full-time faculty member from their department, or, in the case of interdisciplinary students, one, two or three advisors provide expertise in the areas that the student has chosen to study.

The academic advisors supervise a student until graduation. The exceptions to this generally involve a change of major or academic difficulty. Each engineering department, and also the multi-disciplinary faculty committee, designates one advisor to watch a student in academic difficulty with particular attention. The aim is to return the student to normal academic progress as soon as possible. Students under probation must take a lighter course load and are carefully monitored by the committee member representing the student’s department, who consults with the student’s professors monthly.

**Advisement in the Faculty of Humanities and Social Science**

In the Faculty of Humanities and Social Sciences, in addition to the Dean, one faculty member (Academic Advisor) handles academic advisement and support for students in all three schools for the duration of their careers at The Cooper Union, which include, among other duties, the evaluation of transfer credits, the pre-approval of H&SS courses taken outside
The Cooper Union, the management and advisement of students in the Eugene Lang College of the New School University exchange program, and working with faculty and administrators in the schools on scheduling issues and on student enrollment and H&SS requirements.

Over the last five years, advising trends have moved away from granting transfer credit for any of the four H&SS core courses, given the sequenced nature of student learning outcomes within the core series. Over the last two years, in the case of HSS1 (the first core course), a grade of 5 on the diagnostic essay is required in addition to other indications for consideration for exemption from that course. There has also been a trend to steer students away from taking a large portion of their H&SS and HTA elective credits away from The Cooper Union. All of these trends permit a more closely supervised experience in H&SS in order to assure that learning outcomes are met for each and every student. (Appendix 5:5, advising and transfer credit forms.)

Student Life
The Office of the Dean of Students contains within it many elements of student life, including financial advisement, career services, athletics and the student residence. A subcommittee of the Associate Deans of the three schools reviewed student life in 2005 and produced an interim set of objectives, including initiating a segment at the Orientation Program that addressed the issue of cheating in H&SS1, which was incorporated into the Fall 2005 Orientation Program. (Appendix 5:6, mission statement and strategic plan portfolio.)

Assessment of Student Services
Many assessment methods are in place in the various areas of student services, from formal audits imposed by federal and state regulatory agencies to the immediate peer feedback in place for dorm programming. (Appendix 5:7, assessment method chart.)

In June, each Director provides an annual report that details the successes and shortcomings of his or her operation for the previous year. These are submitted to the President as appendices to the Dean of Students’ annual report to the President. In August, all employees provide a self-evaluation. The Directors report on their needs for the future, including self-development efforts, such as attendance at outside training workshops. Annually, at graduation, seniors are surveyed in terms of their satisfaction with services. Students also evaluate certain programs, such as the professional internship and the resident assistantship, as they participate in these programs. Daily reports are kept of security problems, dormitory maintenance requests, and student behavior issues.

The Directors are members of professional organizations that have their own professional standards that allow the Director to benchmark The Cooper Union’s programs against regional and national peer institutions. The Dean of Students considers all of this information
in preparing her annual report to the President in June and in preparing her budget in November. Thus, dual formal processes exist to put forward program revisions. Likewise, the Dean of Students prepares a performance evaluation of each employee every August, which includes the performance of the unit.

Examples of all types of the reports are in the Document Room.

**The Financial Aid Office**

The Financial Aid Office conducts a number of programs including workshops for borrowers, Money Management Workshop, FAFSA workshops (computer-aided, as well as exit interviews for borrowers. Assessment takes place via FISAP report, the report of an internal auditor, a graduating student indebtedness report, a 10-year financial aid comparison, an annual cohort default-rate report, the New York State higher education program evaluation and a review of the daily log of visitors.

Student borrowing has continued to increase, although the average indebtedness is below the national average. (Appendix 5:8, financial aid recipients by school, financial aid historical ten-year review and average loan indebtedness.)

**Center for Career Development**

While the development of professional identities is alluded to in the mission statement of the Office of Student Services, in 2006, the Center for Career Development created its first formal, independent, mission statement. (Appendix 5:9, Center for Career Development’s mission statement.)

The Center for Career Development runs the Professional Internship Program. Begun in 1981 primarily for art students, the program is a formal experiential learning arrangement. It encourages practical learning opportunities to help guide art students in their career development and attempts to level the economic playing field by enabling them to earn a stipend while working in internship positions that are otherwise unpaid. Students who apply are required to submit two letters of recommendation from faculty. The application process is meant to ensure that they are prepared for the program, but also to familiarize them with applying for employment, grants and graduate school, and creates a practical awareness of professors as recommenders of other opportunities.

The program is also available to architecture students. Because traditional architecture internships are generally paid, architecture students utilize the program when they are seeking alternative architecture career paths or work with not-for-profit institutions. Engineering students may also participate, although most engineering internship are paid. In 2006-07, two engineering students received stipends.
The Cooper Union has made a commitment to growing the program. Promotion of the program has also increased in the last several years. Prior to the 2006-07 academic year, an average of 15 students participated. The program now serves 65 art students per year. Students may participate in up to three internships throughout their Cooper Union career.

Participants are required to evaluate their internship experience. Likewise, supervisors evaluate the student’s experience. As an example of how this data has been used to assess and improve the program, the supervisors were often telling the Center Center for Career Development that interns were not particularly interested in acquiring new professional contacts. This led the center to change the format of the mandatory end-of-semester internship evaluation meeting. Originally attended by participating interns to discuss their experience with each other, it is now an internship forum, to which all architecture and art students are invited to learn about the internship experiences of current interns. This change emphasizes student-to-student learning and encourages the building of a network of student contacts who are engaged in professional development on various levels.

The Center for Career Development partners with student chapters of professional organizations to organize and co-sponsor new career-related events. The center has initiated the annual Professional Licensure Panel: Preparation for the Challenges in the Engineering Profession. This panel was organized in conjunction with The Cooper Union’s student chapters for American Society of Mechanical Engineers (ASME), the National Society for Professional Engineers (NSPE), the American Engineering Alliance (AEA) and the American Institute of Chemical Engineers (AIChE). It drew interested students, faculty and career education professionals from neighboring institutions. The Center for Career Development also plans to create a professional licensure program for the architects, as 60 percent of the architecture respondents to our 2006 graduating students’ survey expressed plans to pursue the licensure.

The Center for Career Development has introduced self-assessment tools as a means to discover a professional path that is best aligned with students’ interests, skills, and values. The center now offers:

- Strong interest inventory assessments to students at no charge.
- A downloadable self-assessment worksheet online.
- Self-assessment topics infused into job search workshops.

The center also partners with the Office of Alumni Relations in developing career-focused programming. Events include the Mock Interview Night, Engineering Career Evening (these two events are co-sponsored with the Office of Alumni Relations and the School of Engineering), and CU @ Lunch, a monthly series of professional development presentations over lunch by Cooper Union graduates in architecture and art (co-sponsored by the Office of Alumni Relations). There are also graduate school panels featuring alumni.
More information about the Center for Career Development is to be found in the Document Room.

**Residence Life**
Approximately 20 percent of students at The Cooper Union live in the college-owned residence facility. All first-year and transfer students are invited to live on campus. The Student Residence staff works to build a community that encourages students to broaden their perspectives, enhance personal growth, and prepare for life beyond The Cooper Union. Some of the H&SS core classes are being scheduled to meet within the dormitory. The staff members are trained in CPR and first aid and provide a first response team in the case of late night medical emergencies. Overall, during the course of 2006-2007, residence hall staff organized 83 programs for students. (Appendix 5:10, list of Residence Hall programs.)

**Student Council**
Peter Cooper believed that the students at his institution could serve New York City as “preeminent examples of all the virtues.” To foster this mission, he recommended to the Trustees of The Cooper Union that students be given the opportunity to devise “such rules and regulations as they, on mature reflection, shall believe to be necessary and proper.” The Student Council at The Cooper Union is model of self-government that activates and administers a code of conduct, which is printed in the Campus Safety and Security Report. The Student Council, through 80 organizations and more than 30 subcommittees, runs most of the student-organized activities.

The Student Judiciary Committee that examines infractions of the code of conduct is a subcommittee of the Student Council, as is the Joint Activities Committee, which administers all funds for club activities. The active mechanisms of assessment of the work of the council includes the degree of participation in student elections and the number of candidates who achieve plurality; faculty feedback on student participation on administrative committees; Dean of Student’s review of records posted on Joint Activities Committee website; annual Safety Report statistics; and the financial success of events such as the art auction.

**Athletic Association**
The Cooper Union Athletic Association is a unique organization. It currently supports eight teams (Men’s Basketball, Men’s Tennis, Women’s Tennis, Women’s Volleyball, Men’s Volleyball, Men’s Soccer, Tae Kwon Do, Track and Field). Additional events include a ski trip, a pre-school trip to Cape Cod, a March tennis-training retreat, a golf tournament, a February celebration and Alumni Homecoming. Teams in 2007 led the Hudson Valley Athletic Conference in several categories: Men’s Tennis championship, Women’s Tennis championship, Cross Country championship, and Coach of the Year. To Dean Stephen Baker.
Disability and Medical Services
The Cooper Union currently uses four graduate interns from the Training Institute for Mental Health to help counsel students with psychological problems; they report ever-longer waiting times for appointments. The student population also reported a rise in other medical problems, particularly a high number of asthma complaints. Students also reported disabilities related to their immune systems and circulatory systems, mobility impairments and environmental allergies. The insurance carrier reported extremely high utilization of our insurance benefits.

Figure 12
Students Reporting Disabilities, 1996-2006

There needs to be an increased awareness in the administration for disabilities on campus. Currently there is no formal office with responsibility for disability services. The Dean of Students alone assumes responsibility for determining eligibility and working with the Academic Deans to provide services that are reasonable and individualized and accommodations to students with diagnosed disabilities. The number of students who disclose and document a physical, mental or learning disability has grown substantially over the last five years.

Suggestions and Recommendations
This self-study:

Recommends that, within the next three years, The Cooper Union find innovative, cost-effective ways of handling medical and mental health problems on-site. This should include emergency medical training for any faculty and staff who supervise laboratories.

Suggests that The Cooper Union raises money to increase student financial aid and find innovative ways to provide housing support over the next decade.

Suggests that the School of Engineering reexamine its application algorithm and application process in the next three years.
Chapter 6
Faculty, General Education and Related Educational Activities: Middle States Standards 10, 12 and 13

The Cooper Union’s success in teaching depends heavily upon the creativity and excellence of the faculty. The faculty is exceptionally productive for a primarily undergraduate institution. With respect to scholarly and creative work, full-time and part-time faculty in recent years included four Guggenheim Fellows, two MacArthur Fellows and a Teacher of the Year Award in Engineering. Over the past year, faculty published 15 books and were featured in a number of prestigious exhibitions. Faculty and staff are dedicated to one goal: student success. Toward this end, they extend themselves in ways that go far beyond assessable measures required by institutional self-study, particularly with students who have such high expectations for themselves. Much teacher-student interaction takes place outside the classroom or studio and is facilitated by office hours, extra hours in laboratories and studios, institutional events and accessibility. This section surveys the profile and distribution of the faculty, workloads and faculty development. However, the full story of faculty at The Cooper Union would have to find ways to reveal the depth and range of each professor’s committed work with the students.

FACULTY

Full-time Faculty
Table 17, following, summarizes the profile of the full-time faculty for Fall 2007.

<table>
<thead>
<tr>
<th>Table 17</th>
<th>Full-Time Faculty Profile, Fall 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Architecture</td>
</tr>
<tr>
<td>Full Professors</td>
<td>3</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>0</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>0</td>
</tr>
<tr>
<td>Sub Totals</td>
<td>3</td>
</tr>
<tr>
<td>Tenured</td>
<td>3</td>
</tr>
</tbody>
</table>

All full-time faculty appointments are tenure-track appointments at The Cooper Union. In addition, all full-time faculty and librarians are bargaining unit members of the Cooper Union Federation of College Teachers (CUFCT). Full-time faculty appointments are for nine months each academic year beginning September 1 and ending one week after commencement in the spring of the following year.
In the period since our last Middle States visit, the changes in full-time faculty status, new hires, tenure granted, etc., are summarized in Table 18 below:

Table 18

<table>
<thead>
<tr>
<th>Changes in Status of Full-Time Faculty, 1998–2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Promotions</td>
</tr>
<tr>
<td>Associate to Full</td>
</tr>
<tr>
<td>Assistant to Associate</td>
</tr>
<tr>
<td>Tenure Granted</td>
</tr>
<tr>
<td>New Hires</td>
</tr>
</tbody>
</table>

Proportional and Adjunct Faculty

Table 19, following, summarizes the profile of the proportional and adjunct faculty for Fall 2007.

Table 19

<table>
<thead>
<tr>
<th>Profile of Proportional and Adjunct Faculty, Fall 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Proportional Professors</td>
</tr>
<tr>
<td>Adjunct Professors</td>
</tr>
</tbody>
</table>

Proportional faculty members teach two-thirds of a full-time load or less, are paid salaries and have full benefits. The bulk of the proportional faculty have appointments in the School of Architecture and are, typically, practicing professionals in the field. In the School of Art, proportional faculty members are appointed on a ratio basis (three full-time faculty members to one proportional-time faculty member); long-term members of the adjunct teaching faculty are eligible for proportional positions (see School of Art governance on the Middle States Electronic Resource).

The adjunct faculty are deployed across the four academic units. Most of the adjuncts are used in the School of Art and the School of Engineering. Adjunct faculty members are limited to teaching no more than two courses in a semester and no more than three courses per academic year, as established in the agreement between The Cooper Union and the CUFCT. Unlike proportional faculty members, adjunct faculty members are paid by the course and receive no benefits.
In the Schools of Art and Architecture and the Faculty of Humanities and Social Services (H&SS), proportional faculty members are expected to fully participate in the administrative life of the college. In the Schools of Art and Architecture and H&SS, adjunct faculty members are represented on committees and are otherwise invited to take part in the administrative life of the college. In Engineering, adjunct faculty members do not sit on committees. All faculty members are entitled to facilities and Library use.

**Administrators and Staff**

Qualified administrators and staff members may teach one course per semester, as established in the agreement between The Cooper Union and the CUFCT. For the purposes of the faculty profile, they are considered to be adjunct faculty.

Some administrators also have faculty positions and may be tenured. Currently, three of the Academic Deans, one of the Associate Deans and the Director of the Computer Center have tenured faculty positions. However, given their administrative appointments, they are not considered to be full-time faculty. If an administrator with tenure were to step down from his or her administrative post while still employed at The Cooper Union, then that administrator would automatically become a member of the full-time faculty.

**Faculty Diversity**

Figure 13 below shows the rank and gender of full-time faculty in the Fall of 2007.

The chart on the following page, Figure 14, shows The Cooper Union’s full time faculty by race and ethnicity. While these data reflect a profile that is less diverse than the typical American collegiate faculty in 2007, The Cooper Union has continued to strive to increase the diversity of its faculty in relation to the diversity of its student body.
The chart below, Figure 15, compares The Cooper Union’s full-time and part-time faculty on race and ethnicity data for 2007.

In terms of part-time faculty, the diversity record is better than that for full-time faculty. (Appendix 6:1, table of adjunct faculty by gender, race and ethnicity, Fall 2007.) While these numbers reflect a small faculty overall and several years of retrenchment, clearly action must to be taken. In reviewing other diversity initiatives, the working group covering standard 10 was impressed by the Hofstra University Faculty Diversity Task Force Report 2004–2006 that noted:
• The challenges in competing with other institutions for the same pool of candidates.
• Problems in addressing “differential of scrutiny” for minority candidates.
• Problems in creating networks of recruitment sources and support at The Cooper Union.
• The need for ongoing sensitization to issues of diversity.

They offered the following specific ideas:
• That programs reflect respect for diversity.
• That The Cooper Union build relationships with Historically Black Colleges and other institutions and programs internal to the United States that train minority candidates and seek larger representation from foreign countries.
• That The Cooper Union provide more resources for visiting faculty from around the globe.
• That diversity be reflected as a consistent goal in the mission statement and on websites, advertisements, etc.
• That steps be taken to make these actions progressive and sustained.

In sum, the top minority candidates in art, design, architecture, science and engineering and humanities and social sciences have many options. A clearer and more rigorous strategy of recruiting, sustaining, and promoting a diverse faculty needs to be developed and implemented to be in place to secure select minority candidates. Strategies following the first goal of the new strategic plan 2007–2012 reflect an institutional commitment to diversity in hiring.

**Faculty Credentials**

In terms of academic credentials, 88 percent of the full-time faculty has terminal degrees in their disciplines. This illustrates The Cooper Union’s traditional and rigorous commitment to hiring and sustaining full-time faculty with the best possible credentials. The full list of universities and programs from which The Cooper Union faculty received their degrees is available in the Document Room. Among the part-time faculty, a broader range of credentials reflects The Cooper Union’s recognition of appropriate specialized professional experience to augment degrees. All faculty vitae, including those for adjuncts, are available in the Document Room and in the Middle States Electronic Resource.

**Faculty Workloads**

According to the agreement between The Cooper Union and the CUFCT, the teaching load for a full-time faculty member is nine contact hours (typically three courses) per semester. Additionally, faculty have obligations in advising and committee work.

The working group covering Middle States standard 10 was impressed by the care and time devoted by members of Schools of Art and Architecture to recruitment and admission of students. Given the relatively small number of full-time faculty, the working group was similarly impressed in an analysis of the work of the standing committees of the four faculties.
(See Standing Committees in the Middle States Electronic Resource.) The committees concluded that committee work, advising, and general supervision of students and curricula occupy a demanding, if not constricting amount of time for full-faculty.

However, the working group for standard 10 expressed concern about the condition of the School of Architecture in having so few full-time faculty members to maintain the core of the program. Committee membership has had to be duplicated by the same faculty. By contrast, ABET (the Accrediting Board for Engineering and Technology) has guidelines on this matter, and over the years the effect of those guidelines shows in the 1:2 ratio between full-time and part-time members of the Engineering faculty. Although the School of Architecture has the largest number of proportional positions that carry with them the obligation for committee work and advising, tenure-track appointments require a very special career commitment to the institution.

Deployment of Faculty

The Cooper Union has examined the deployment of full-time and part-time faculty by program as part of the analysis for strategic decisions on faculty growth. The Cooper Union also looks at the student credit-loading and the scheduled time of the full-time faculty and part-time faculty in an effort to understand more about the nature of the academic workforce. The chart, Figure 16 below, displays the number of students that full-time and part-time members of the faculty taught in Fall 2006:

Figure 16

Fall 2006 Number of Students Taught

The analysis of student loads revealed that full-time faculty teach, on average, between 45 and 50 students per semester, and that range does not change noticeably with overloads, meaning that average class sizes range from 15 to 17. A breakdown by faculty reveals slightly differing loads, as shown in Tables 20–23 on the following pages.
Table 20

**Student Loads of Full-Time Art Faculty, 2001–2007**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Number of Classes</th>
<th>Total number of students</th>
<th>Avg load/class</th>
<th>Max.</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall '01</td>
<td>100</td>
<td>1260</td>
<td>12.6</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Spring '02</td>
<td>94</td>
<td>1183</td>
<td>12.59</td>
<td>35</td>
<td>2</td>
</tr>
<tr>
<td>Fall '02</td>
<td>99</td>
<td>1263</td>
<td>12.76</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>Spring '03</td>
<td>83</td>
<td>1035</td>
<td>12.47</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Fall '03</td>
<td>83</td>
<td>1125</td>
<td>13.55</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>Spring '04</td>
<td>86</td>
<td>1180</td>
<td>13.72</td>
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<tr>
<td>Fall '04</td>
<td>91</td>
<td>1265</td>
<td>13.9</td>
<td>37</td>
<td>2</td>
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<tr>
<td>Spring '05</td>
<td>92</td>
<td>1192</td>
<td>12.96</td>
<td>41</td>
<td>2</td>
</tr>
<tr>
<td>Fall '05</td>
<td>98</td>
<td>1284</td>
<td>13.1</td>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>Spring '06</td>
<td>92</td>
<td>1192</td>
<td>12.96</td>
<td>41</td>
<td>2</td>
</tr>
<tr>
<td>Fall '06</td>
<td>95</td>
<td>1279</td>
<td>13.46</td>
<td>38</td>
<td>4</td>
</tr>
<tr>
<td>Spring '07</td>
<td>85</td>
<td>1079</td>
<td>12.69</td>
<td>37</td>
<td>2</td>
</tr>
<tr>
<td>Fall '07</td>
<td>99</td>
<td>1313</td>
<td>13.26</td>
<td>39</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 21

**Student Loads of Full-Time Engineering Faculty, 2001–2007**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Number of Classes</th>
<th>Total number of students</th>
<th>Avg load/class</th>
<th>Max.</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall '01</td>
<td>121</td>
<td>2414</td>
<td>19.95</td>
<td>49</td>
<td>3</td>
</tr>
<tr>
<td>Spring '02</td>
<td>125</td>
<td>2105</td>
<td>16.84</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>Fall '02</td>
<td>128</td>
<td>2501</td>
<td>19.54</td>
<td>60</td>
<td>2</td>
</tr>
<tr>
<td>Spring '03</td>
<td>91</td>
<td>1640</td>
<td>18.02</td>
<td>52</td>
<td>2</td>
</tr>
<tr>
<td>Fall '03</td>
<td>117</td>
<td>2191</td>
<td>18.73</td>
<td>42</td>
<td>2</td>
</tr>
<tr>
<td>Spring '04</td>
<td>137</td>
<td>2374</td>
<td>17.33</td>
<td>52</td>
<td>2</td>
</tr>
<tr>
<td>Fall '04</td>
<td>135</td>
<td>2657</td>
<td>19.68</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>Spring '05</td>
<td>148</td>
<td>2470</td>
<td>16.69</td>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>Fall '05</td>
<td>143</td>
<td>2715</td>
<td>18.99</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Spring '06</td>
<td>148</td>
<td>2470</td>
<td>16.69</td>
<td>45</td>
<td>2</td>
</tr>
<tr>
<td>Fall '06</td>
<td>150</td>
<td>2745</td>
<td>18.3</td>
<td>43</td>
<td>2</td>
</tr>
<tr>
<td>Spring '07</td>
<td>136</td>
<td>2246</td>
<td>16.51</td>
<td>41</td>
<td>2</td>
</tr>
<tr>
<td>Fall '07</td>
<td>144</td>
<td>2645</td>
<td>18.37</td>
<td>46</td>
<td>2</td>
</tr>
</tbody>
</table>
### Table 22

**Student Loads of Full-Time Humanities Faculty, 2001–2007**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Number of Classes</th>
<th>Total number of students</th>
<th>Avg load/class</th>
<th>Max.</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall ’01</td>
<td>71</td>
<td>1104</td>
<td>15.55</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>Spring ’02</td>
<td>68</td>
<td>1030</td>
<td>15.15</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>Fall ’02</td>
<td>78</td>
<td>1135</td>
<td>14.55</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>Spring ’03</td>
<td>59</td>
<td>942</td>
<td>15.97</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>Fall ’03</td>
<td>54</td>
<td>924</td>
<td>17.11</td>
<td>53</td>
<td>3</td>
</tr>
<tr>
<td>Spring ’04</td>
<td>63</td>
<td>1066</td>
<td>16.92</td>
<td>43</td>
<td>2</td>
</tr>
<tr>
<td>Fall ’04</td>
<td>64</td>
<td>1138</td>
<td>17.78</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Spring ’05</td>
<td>64</td>
<td>1065</td>
<td>16.64</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Fall ’05</td>
<td>61</td>
<td>1078</td>
<td>17.67</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Spring ’06</td>
<td>64</td>
<td>1065</td>
<td>16.64</td>
<td>31</td>
<td>2</td>
</tr>
<tr>
<td>Fall ’06</td>
<td>68</td>
<td>1074</td>
<td>15.79</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>Spring ’07</td>
<td>52</td>
<td>835</td>
<td>16.06</td>
<td>32</td>
<td>4</td>
</tr>
<tr>
<td>Fall ’07</td>
<td>70</td>
<td>1119</td>
<td>15.99</td>
<td>24</td>
<td>4</td>
</tr>
</tbody>
</table>

### Table 23

**Student Loads of Full-Time Architecture Faculty, 2001–2007**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Number of Classes</th>
<th>Total number of students</th>
<th>Avg load/class</th>
<th>Max.</th>
<th>Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall ’01</td>
<td>27</td>
<td>677</td>
<td>25.07</td>
<td>38</td>
<td>4</td>
</tr>
<tr>
<td>Spring ’02</td>
<td>27</td>
<td>592</td>
<td>21.93</td>
<td>39</td>
<td>5</td>
</tr>
<tr>
<td>Fall ’02</td>
<td>28</td>
<td>674</td>
<td>24.07</td>
<td>35</td>
<td>2</td>
</tr>
<tr>
<td>Spring ’03</td>
<td>30</td>
<td>674</td>
<td>22.47</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>Fall ’03</td>
<td>29</td>
<td>713</td>
<td>24.59</td>
<td>39</td>
<td>7</td>
</tr>
<tr>
<td>Spring ’04</td>
<td>30</td>
<td>682</td>
<td>22.73</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Fall ’04</td>
<td>25</td>
<td>679</td>
<td>27.16</td>
<td>44</td>
<td>13</td>
</tr>
<tr>
<td>Spring ’05</td>
<td>29</td>
<td>659</td>
<td>22.72</td>
<td>39</td>
<td>4</td>
</tr>
<tr>
<td>Fall ’05</td>
<td>27</td>
<td>688</td>
<td>25.48</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>Spring ’06</td>
<td>29</td>
<td>659</td>
<td>22.72</td>
<td>39</td>
<td>4</td>
</tr>
<tr>
<td>Fall ’06</td>
<td>28</td>
<td>632</td>
<td>22.57</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Spring ’07</td>
<td>28</td>
<td>631</td>
<td>22.54</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Fall ’07</td>
<td>27</td>
<td>670</td>
<td>24.81</td>
<td>34</td>
<td>9</td>
</tr>
</tbody>
</table>

*Studios are team taught (three professors)*
In any given academic year, few of the full-time faculty members teach overloads, as shown in Table 24 below.

<table>
<thead>
<tr>
<th>Overloads</th>
<th># of Professors</th>
<th># of Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 AY</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>2002 AY</td>
<td>15</td>
<td>56</td>
</tr>
<tr>
<td>2003 AY</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>2004 AY</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>2005 AY</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>2006 AY</td>
<td>17</td>
<td>43.5</td>
</tr>
</tbody>
</table>

The faculty considers that the average student loads and class sizes indicated above are vital indicators to The Cooper Union’s success at student learning outcomes. The schools’ long-stated missions dictate a low faculty-to-student ratio in order to ensure the personal academic attention required of an institution that seeks “excellence” at the undergraduate level. Faculty spend considerable amounts of time with students beyond formal contact hours—advising, tutoring, providing extra help on coursework, writing references and overseeing independent study. The commitment of the faculty to the individual success of students must remain the central effort at any undergraduate-focused institution. The effort of the faculty devoted to pedagogical innovation, to program development and to assessment measures has increased over the last 10 years.

The Cooper Union also analyzed the course schedules of faculty members for Fall 2007. The results indicated that each semester, all full-time faculty are scheduled to teach three days a week or less. About one-third of the faculty is scheduled to teach on Tuesdays and Thursdays, and about one third are scheduled to teach on Mondays and Wednesdays. Far fewer courses occur during the daytime on Fridays. However, with the impending move to the new academic building, course scheduling and the distribution of courses among a smaller number of classrooms will result in a more uniform distribution throughout the work week, including evenings.

**Faculty Compensation**

Since 1998 collective bargaining has emphasized improvement of faculty salaries as a priority in annual budget formulation.
For this self-study the Steering Committee established a basket of peer institutions: New York State institutions of higher education with recognized, selective programs in the three disciplines represented at The Cooper Union. The tables below (Tables 25–27) show the average faculty salary by rank against the cohort in terms of actual dollars:

**Table 25**

**Comparison of Average Salaries for Professors, 2002-3 to 2006-7**

<table>
<thead>
<tr>
<th>Professor</th>
<th>2002-3</th>
<th>2003-4</th>
<th>2004-5</th>
<th>2005-6</th>
<th>2006-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bard College</td>
<td>N/A</td>
<td>97.3</td>
<td>98.0</td>
<td>103.5</td>
<td>110.2</td>
</tr>
<tr>
<td>City Univ. of New York, City College</td>
<td>96.1</td>
<td>96.8</td>
<td>96.5</td>
<td>96.1</td>
<td>102.7</td>
</tr>
<tr>
<td>City Univ. of New York, NYC College of Technology</td>
<td>88.8</td>
<td>88.2</td>
<td>88.7</td>
<td>87.6</td>
<td>95.9</td>
</tr>
<tr>
<td>The Cooper Union for the Advancement of Science and Art</td>
<td>88.4</td>
<td>88.9</td>
<td>93.0</td>
<td>98.0</td>
<td>102.2</td>
</tr>
<tr>
<td>Cornell Univ., Contract Colleges</td>
<td>98.8</td>
<td>103.9</td>
<td>109.7</td>
<td>116.1</td>
<td>121.7</td>
</tr>
<tr>
<td>Hofstra Univ.</td>
<td>102.4</td>
<td>103.4</td>
<td>110.6</td>
<td>115.9</td>
<td>120.4</td>
</tr>
<tr>
<td>New York Inst. of Technology, Old Westbury</td>
<td>94.9</td>
<td>97.8</td>
<td>N/A</td>
<td>108.2</td>
<td>109.7</td>
</tr>
<tr>
<td>New York Inst. of Technology, Manhattan</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>101.2</td>
<td>106.7</td>
</tr>
<tr>
<td>Polytechnic Univ.</td>
<td>98.6</td>
<td>99.5</td>
<td>95.7</td>
<td>102.5</td>
<td>113.3</td>
</tr>
<tr>
<td>Pratt Inst.</td>
<td>63.1</td>
<td>61.4</td>
<td>N/A</td>
<td>69.4</td>
<td>70.9</td>
</tr>
<tr>
<td>Rensselaer Polytechnic Inst.</td>
<td>99.4</td>
<td>104.6</td>
<td>106.2</td>
<td>110.8</td>
<td>111.7</td>
</tr>
<tr>
<td>Rochester Inst. of Technology</td>
<td>91.7</td>
<td>96.5</td>
<td>98.2</td>
<td>99.8</td>
<td>100.9</td>
</tr>
<tr>
<td>State Univ. of New York, Purchase</td>
<td>71.9</td>
<td>66.9</td>
<td>74.3</td>
<td>75.2</td>
<td>78.9</td>
</tr>
</tbody>
</table>
### Table 26
**Comparison of Average Salaries for Associate Professors, 2002-3 to 2006-7**

<table>
<thead>
<tr>
<th>Associate Professor</th>
<th>average salary $'000's</th>
<th>2002-3</th>
<th>2003-4</th>
<th>2004-5</th>
<th>2005-6</th>
<th>2006-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bard College</td>
<td>N/A</td>
<td>70.1</td>
<td>73.9</td>
<td>75.9</td>
<td>78.5</td>
<td></td>
</tr>
<tr>
<td>City Univ. of New York, City College</td>
<td>74.1</td>
<td>74.2</td>
<td>74.2</td>
<td>74.3</td>
<td>81.5</td>
<td></td>
</tr>
<tr>
<td>City Univ. of New York, NYC College of Technology</td>
<td>71.4</td>
<td>70.7</td>
<td>71.3</td>
<td>69.7</td>
<td>75.5</td>
<td></td>
</tr>
<tr>
<td>The Cooper Union for the Advancement of Science and Art</td>
<td>67.8</td>
<td>68.6</td>
<td>71.4</td>
<td>76.7</td>
<td>79.7</td>
<td></td>
</tr>
<tr>
<td>Cornell Univ., Contract Colleges</td>
<td>73.9</td>
<td>76.8</td>
<td>80.7</td>
<td>84.2</td>
<td>88.5</td>
<td></td>
</tr>
<tr>
<td>Hofstra Univ.</td>
<td>73.2</td>
<td>75.4</td>
<td>78.1</td>
<td>80.3</td>
<td>83.4</td>
<td></td>
</tr>
<tr>
<td>New York Inst. of Technology, Old Westbury</td>
<td>74.6</td>
<td>74.4</td>
<td>N/A</td>
<td>80.7</td>
<td>80.8</td>
<td></td>
</tr>
<tr>
<td>New York Inst. of Technology, Manhattan</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>81.2</td>
<td>81.4</td>
<td></td>
</tr>
<tr>
<td>Polytechnic Univ.</td>
<td>70.2</td>
<td>70.9</td>
<td>67.1</td>
<td>73</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Pratt Inst.</td>
<td>54.7</td>
<td>55</td>
<td>N/A</td>
<td>57.4</td>
<td>58.5</td>
<td></td>
</tr>
<tr>
<td>Rensselaer Polytechnic Inst.</td>
<td>72.4</td>
<td>76.2</td>
<td>77.8</td>
<td>82</td>
<td>82.1</td>
<td></td>
</tr>
<tr>
<td>Rochester Inst. of Technology</td>
<td>71.2</td>
<td>74.3</td>
<td>74</td>
<td>75.3</td>
<td>75.5</td>
<td></td>
</tr>
<tr>
<td>State Univ. of New York, Purchase Univ. College</td>
<td>59.8</td>
<td>56.7</td>
<td>60</td>
<td>61.1</td>
<td>65.2</td>
<td></td>
</tr>
</tbody>
</table>

### Table 27
**Comparison of Average Salaries for Assistant Professors, 2002-3 to 2006-7**

<table>
<thead>
<tr>
<th>Assistant Professor</th>
<th>average salary $'000's</th>
<th>2002-3</th>
<th>2003-4</th>
<th>2004-5</th>
<th>2005-6</th>
<th>2006-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bard College</td>
<td>N/A</td>
<td>55.8</td>
<td>57.8</td>
<td>60.8</td>
<td>62.2</td>
<td></td>
</tr>
<tr>
<td>City Univ. of New York, City College</td>
<td>60.7</td>
<td>60.3</td>
<td>60.3</td>
<td>60.8</td>
<td>66.5</td>
<td></td>
</tr>
<tr>
<td>City Univ. of New York, NYC College of Technology</td>
<td>55.7</td>
<td>54.5</td>
<td>55.5</td>
<td>56.2</td>
<td>61.6</td>
<td></td>
</tr>
<tr>
<td>The Cooper Union for the Advancement of Science and Art</td>
<td>62.7</td>
<td>63.6</td>
<td>65.6</td>
<td>68.5</td>
<td>72.7</td>
<td></td>
</tr>
<tr>
<td>Cornell Univ., Contract Colleges</td>
<td>64.4</td>
<td>67.5</td>
<td>72</td>
<td>76.4</td>
<td>80.7</td>
<td></td>
</tr>
<tr>
<td>Hofstra Univ.</td>
<td>56.3</td>
<td>57.9</td>
<td>60.5</td>
<td>62</td>
<td>65.8</td>
<td></td>
</tr>
<tr>
<td>New York Inst. of Technology, Old Westbury</td>
<td>60.2</td>
<td>61.3</td>
<td>N/A</td>
<td>68.6</td>
<td>68.9</td>
<td></td>
</tr>
<tr>
<td>New York Inst. of Technology, Manhattan</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>66.2</td>
<td>67.7</td>
<td></td>
</tr>
<tr>
<td>Polytechnic Univ.</td>
<td>67.4</td>
<td>67.1</td>
<td>68</td>
<td>71</td>
<td>77.6</td>
<td></td>
</tr>
<tr>
<td>Pratt Inst.</td>
<td>41.1</td>
<td>42.2</td>
<td>N/A</td>
<td>45.7</td>
<td>49.6</td>
<td></td>
</tr>
<tr>
<td>Rensselaer Polytechnic Inst.</td>
<td>64.5</td>
<td>69.4</td>
<td>69</td>
<td>71</td>
<td>74.4</td>
<td></td>
</tr>
<tr>
<td>Rochester Inst. of Technology</td>
<td>57.7</td>
<td>60.7</td>
<td>60.8</td>
<td>61.3</td>
<td>62.9</td>
<td></td>
</tr>
<tr>
<td>State Univ. of New York, Purchase Univ. College</td>
<td>45.9</td>
<td>44.9</td>
<td>46.7</td>
<td>47.4</td>
<td>50.7</td>
<td></td>
</tr>
</tbody>
</table>
Each of the Academic Deans consider faculty pay scales relatively low compared to other teaching opportunities in the area. The Dean of Engineering stated specifically that the School of Engineering does not always attract its first-choice new hires because of the low salaries in relationship to the high cost of living in the New York City metropolitan area. The Dean of the School of Art has reported that adjunct salaries are competitive and that full-time salaries and teaching loads are generally better than those at other independent colleges of art and design, especially outside the metropolitan area, but these compensations are not competitive with those of art programs at major universities with graduate programs in art.

Faculty salary increases have occurred annually except in the 2002-2003 academic year. Increases have ranged from 3 percent to 5 percent over the last decade. Each faculty member receives the same annual percentage increase agreed upon by The Cooper Union and the CUFCT. Faculty who have earned promotions also receive an additional step increase. The CUFCT does not support the idea of merit raises because of evidence that such raises were abused in the distant past and the limited funds available for increases.

Currently, new faculty join the ranks at salaries close to more senior faculty members. This self-study suggests that some new balance be struck between competitiveness at hiring and equity with continuing faculty. At present, the CUFCT is examining alternative approaches to dealing with the issue of salary compression.

**Adjunct Compensation**

While steady attention continues to be paid to full-time faculty compensation in collective bargaining, progress on adjunct compensation has moved more irregularly, largely because of the different understandings by the schools of appropriate compensation for those engaged in professional practice.

In the School of Engineering, adjuncts are paid at a rate of $1,000 per contact hour, or $3,000 for a three-credit course. Most are distinguished practicing professionals, and they teach fundamental, specialized and design courses. The Dean of Engineering will raise the rate to $4,000 for a three credit course beginning in September 2008.

In the Faculty of Humanities and Social Services, the compensation is $1,500 per contact hour. In 2005, the Faculty’s Administrative Committee moved to create a difference among adjuncts, recognizing those with longstanding service of five years and a PhD by creating a cohort at $5,000 per three contact hours.

In the School of Art, the lowest level is $4,500 per course, and those with three years (six semesters) of teaching experience at the college are eligible for three-year contracts.
In the School of Architecture, adjunct members of the faculty are paid $2,087, on average, per credit hour.

It is the suggestion of this self-study that ways be found to develop an annually-adjusted adjunct compensation plan that will meet the needs of the various disciplines more effectively.

**Faculty Development, Assessment, Rank and Tenure**

Sustaining the quality and effectiveness of the faculty are important strategic objectives for The Cooper Union. The institution achieves these objectives in six ways.

**Faculty Development and Assessment**

In addition to the Chief Academic Officer and Deans, the Administrative Committees play particularly important consultative roles in the area of faculty development. Faculty development and assessment start at the point of hiring and continue in various ways throughout the lifespan of a Cooper Union faculty member.

**Portfolios**

Professional portfolios are the bedrock of faculty development and assessment. The agreement between The Cooper Union and the CUFCT requires each Academic Dean to meet with every faculty member who is being considered for a change of status to discuss and evaluate work performance. A change of status may include reappointment, promotion or tenure. The process reveals the areas in which each faculty member needs to pursue additional professional development, as well as the research and scholarship agenda.

**Sabbatical Leaves**

In addition to the standard policy of sabbatical leaves after six years, the agreement between The Cooper Union and the CUFCT now allows for half-year sabbaticals after three years, at two-thirds pay. This policy was developed in part to aid younger faculty preparing for tenure.

**Professional Development Activities**

Beyond the resources of CURF, which has now become the C.V. Starr Foundation, and sabbatical leaves, there is often little a faculty member can count on for time to arrange exhibitions, travel, attend or plan conferences, prepare grant applications, pursue research and publishing support, and so forth.

Opportunities for professional development for full-time faculty members are inconsistent across the institution. Provision for such opportunities, including course-release time, research and development money, physical resources, and travel money, is included in budgetary planning for some (but not all) schools and faculties, but funds are extremely limited. Disbursement is at the discretion of Deans, and there are no written policies in place and no
consistent orientation for funding professional development. Funds are generally unavailable for research assistants, individual projects, and release time for individual projects. Funding for conferences and seminars is awarded on a case-by-case basis across all schools and H&SS.

Professional development and assessment are crucial to the intellectual, scientific and creative life of the institution, not only because it affects the reputation of the institution, but also because faculty members who are thoroughly engaged with the most current work in their fields are able to bring the richest experiences to their students in the classroom. The lack of funding and the ad-hoc nature of fund disbursement create serious morale issues among faculty members. Such issues also potentially discourage new faculty recruits to The Cooper Union.

There are four modest faculty development grants awarded on a competitive basis by the President’s Office. (Appendix 6:2, list of internal faculty grants.)

The Cooper Union also sponsors professional development activities for groups of faculty and the full faculty. Topics included in these programs include technology training, assessment, recognizing mental health issues among students, and other topics of interest or value to the faculty. This self-study recommends that The Cooper Union develop a consistent and sustainable program of faculty support and professional development as a priority concern.

**Faculty Mentors and Peer Observation**

Experienced faculty may agree to mentor new faculty through their first year. Additionally, on a voluntary basis, many adjunct faculty invite full-time and proportional colleagues to observe their teaching and to provide comments to coach them on improvements. In the School of Architecture, the practice of group teaching and critique provides a built-in model of teaching effectiveness.

**Course Evaluations**

All faculty may participate in the course evaluation process. The agreement between The Cooper Union and the CUFCT requires that:

- The participation of the full-time faculty must be completely voluntary.
- The results of any anonymous survey must be given directly and exclusively to the faculty member.
- Any full-time faculty member participating in a survey will have the opportunity to participate in the formulation of the survey questions.

Many faculty design course evaluation instruments are tailored to the particular needs of the curriculum. H&SS and the School of Architecture employ course evaluation forms designed by and for all faculty. In H&SS all adjunct and proportional faculty course evaluations are reviewed by the Dean, and written comments are forwarded to the teacher.
Promotion and Tenure Processes

Procedures governing promotion and tenure processes are described in detail in the schools’ governances and in the agreement between The Cooper Union and the CUFCT. Copies of these documents are available in the Document Room. Historically, the promotion and tenure processes at The Cooper Union constituted the most formal assessment program for tenure-track faculty. While other processes, indicated above, have become important, the preparation for tenure and promotion—and the assessment of candidates’ work around those moments—remains the most critical phase of faculty assessment.

The three main criteria for tenure and promotion are satisfactory teaching, scholarship, and service. Faculty members apply for tenure in their sixth year of service, and as is traditional throughout higher education, they must achieve tenure or leave the institution.

The only formal post-tenure review process at The Cooper Union is the application for promotion from associate to full professor. Nevertheless tenured faculty members are expected to report their professional development to their Deans each year; and strengthening the post-tenure professional development oversight is a stated objective of the Office of the President.

Academic Freedom

The agreement between The Cooper Union and the CUFCT has a strong statement on academic freedom that protects all full-time members of the faculty and librarians. All four faculties, in their statements of mission or objectives, also reiterate their commitment to academic freedom.

The working group for standards 10, 12 and 13, however, suggested that The Cooper Union should revise its statements on academic freedom to incorporate a stronger tone, such as that contained in AAUP statements. The Cooper Union should provide a reassuring structure for the inquiry into controversial subjects, the protection of research results, and free expression in art and thought. Foremost on this subject, this self-study advocates that The Cooper Union continue to uphold the principle of a free institution based on merit. A meritocracy provides the firmest ground for the exercise of academic freedom.

Faculty Scholarship and Professional Activity

The Cooper Union’s faculty is actively engaged in their professions and with their disciplinary associations. Many have published books, written articles for refereed journals, presented their work in group and solo shows or built projects. Conference presentations are also numerous. Many patents have been obtained. Samples of topics and types of scholarship are reported in the “President’s Newsletter,” “At Cooper Union,” “Clockworks” and many other reports and publications—all of which are available in the Document Room and on the Middles States Electronic Resource.
Survey Data: Alumni Opinions of Cooper Union Faculty (the full report can be found in section 2.1.6 of the Institutional Research portion of the Middle States electronic resource)

The 2005 Alumni Survey, the first extensive Alumni Survey, asked respondents to rate the following: “Quality of faculty” and “Access to faculty.” This survey revealed progressive differences between the cohorts seemingly associated with the amount of experience, including life experience, since graduation from The Cooper Union. (Detailed break downs of the Alumni Survey are available in the Document Room.) Across schools, each question received mean ratings above or significantly above “good.”

On a scale of 0–5, in the overall Alumni Survey, more than 83 percent of respondents rated faculty quality “good” or “very good,” for a cross-year mean of 4.24 (± .13) as shown in Figure 17 below.

Similarly, alumni respondents were satisfied with their access to faculty, with 83.93 percent of respondents in the overall survey rating access to faculty in the 4-5 range, resulting in a cross-year mean rating of 4.34 (± .09). See Figure 18 on the following page.
Figure 18

**2005 Alumni Survey: Access to Faculty**

The next edition of the Alumni Survey will build our database and include more questions related to faculty, such as quality of advising and many others already included in our yearly Student Exit Surveys (which also may be viewed in the Document Room). In addition, a distinction between full-time and adjunct faculty will be made.

**GENERAL EDUCATION**

General education requirements at The Cooper Union are established by the faculties of each school and/or each department (as in Engineering). In all cases the credits produced by students taking the required courses in general education more than fulfill both the expectations of the three professional accrediting bodies and Middle States’ minimum expectation of 30 semester hours.

The credit hour requirements for each program are shown in Table 28, following.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>HSS Core</th>
<th>Math</th>
<th>Sciences</th>
<th>Art/Arch History</th>
<th>GenEd Electives</th>
<th>Total GenEd</th>
<th>Discipline</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
<td>12</td>
<td>0</td>
<td>3</td>
<td>14</td>
<td>12</td>
<td>41</td>
<td>87</td>
<td>130</td>
</tr>
<tr>
<td>Architecture (5-year)</td>
<td>12</td>
<td>6</td>
<td>4</td>
<td>12</td>
<td>26</td>
<td>60</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>Engineering, Civil</td>
<td>12</td>
<td>17</td>
<td>20</td>
<td>0</td>
<td>12</td>
<td>61</td>
<td>74</td>
<td>135</td>
</tr>
<tr>
<td>Engineering, Chemical</td>
<td>12</td>
<td>17</td>
<td>19</td>
<td>0</td>
<td>12</td>
<td>66</td>
<td>75</td>
<td>135</td>
</tr>
<tr>
<td>Engineering, Mechanical</td>
<td>12</td>
<td>17</td>
<td>20</td>
<td>0</td>
<td>6</td>
<td>55</td>
<td>80</td>
<td>135</td>
</tr>
<tr>
<td>Engineering, Electrical</td>
<td>12</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>6</td>
<td>58</td>
<td>77</td>
<td>135</td>
</tr>
<tr>
<td>Engineering, Interdisciplinary</td>
<td>12</td>
<td>18</td>
<td>20</td>
<td>0</td>
<td>6</td>
<td>56</td>
<td>79</td>
<td>135</td>
</tr>
</tbody>
</table>
It is important to note that the general education component of an education at The Cooper Union is expressed directly in the mission of the whole college. The importance of the generalist and humanistic emphasis of The Cooper Union’s educational programs is communicated directly to the entering students at orientation and to their parents as well, should they participate in sessions offered during freshman orientation.

For math, physics and chemistry, within the context of an engineering education, the shift from a general education to one with the focus of an engineering major is without clear lines of demarcation. Courses in math, physics and chemistry are organized by departments within the School of Engineering, even though they may be taken by students from the Schools of Art and Architecture. This brief review of the programs and assessment work of these three departments, therefore, includes some consideration of upper division courses as well.

**Information Literacy**

A foundational integral component of The Cooper Union’s programs is the development of students’ “information literacy.” The programs are ever vigilant of their students’ abilities in this area. Given their differences in pedagogy and focus, each of faculties approach information literacy in ways that best serve their fields and curricula. These efforts are integral to the pedagogy at The Cooper Union and are supported by close consultation with and involvement of the professionals in The Cooper Union Library. To that end, The Cooper Union Library applies the information literacy standards of the Association of College and Research Libraries, incorporating the ACRL standards for higher education as well as those developed for science and engineering/technology. These standards detail the research proficiencies necessary to locate in-depth information sources, including the analytical and evaluative skills needed for the development of critical judgment of those sources. In bibliographic instruction sessions and on an individual basis, librarians engage the demands of the curricula while laying a foundation for lifelong learning. In bibliographic sessions, librarians emphasize research strategy, research techniques and criteria for the evaluation of information, enabling Cooper Union students to:

- Determine the nature and extent of the information needed.
- Retrieve information effectively and efficiently.
- Critically evaluate the collected information and revise initial query if necessary.
- Cite sources.
- Understand the economic, ethical, legal and social issues surrounding the use of information and its technologies as an individual or as a member of a group.
- Use information effectively, ethically, and legally to accomplish a specific purpose.
- Understand that information literacy is an ongoing process and an important component of lifelong learning.
- Recognize the need to keep current regarding new developments in his or her field.
Faculty of Humanities and Social Sciences
The Faculty of Humanities and Social Sciences’ clear and simple mission statement is to provide, within The Cooper Union’s structure of three professional degree-granting schools, a liberal arts education “equal to the best.” A student’s deep engagement with his or her chosen discipline and the breadth of critical understanding achieved through courses in H&SS together constitute the “quality undergraduate education” that remains a distinctive hallmark of higher education in the U.S.

Goals
The goals supporting the mission focus on student development during the student’s years at The Cooper Union include a range of skills and understanding. These include:

- Developing in the student skills in critical analysis.
- Developing in the student skills necessary for engaged citizenship.
- Developing in the student an appreciation of world cultures and of America within a global context;
- Developing in the student skills in writing and non-written expression.

Objectives
The following objectives support the above goals and include their assessment measures.

- Maintaining The Cooper Union’s tradition of small class size in order to maximize student-instructor engagement and to optimize opportunities both for classroom effectiveness and assessment feedback so that critical engagement is possible.

  The documentation on class size and feedback from instructors provides a basis for adjusting staffing levels within the available budget.

- Sustaining an appropriate resource allocation between core courses and electives that will complement and enhance the student’s professional development within the three schools.

  A Cooper Union liberal arts education is intended to provide not only exposure to and abilities to engage in a breadth of disciplines, but to see those experiences as connecting to engaged citizenship and to the world beyond the United States. Full-time faculty are asked to provide a four-semester sequence of electives so that each Cooper Union student may have as a broad an opportunity as possible in their junior and senior years. The Curriculum Committee assesses proposals for all new courses and advises on areas of curricular need with an eye to the breadth of cultures covered. (Minutes of the Curriculum Committee of H&SS for the last five years are in the Middle States Electronic Resource; Appendix 6:3, sample proposals and comments from the Curriculum Committee; Appendix 6:4, a five-year table of elective curricular offerings.)
• Building into the curriculum an understanding of the breadth of historical movement and development, both within the four-semester core and, in the case of students in the School of Art, within the current three-semester, six-credit art history sequence. The Cooper Union is exceptionally strong in its history faculty; three historians and a social scientist whose work is enmeshed in historical questions provide Cooper Union students with a strong framework that is further augmented by outstanding adjunct faculty. The Cooper Union’s faculty in the history and theory of art is also unusually strong, anchored by a senior professor with an international reputation in the history of modern art and an associate professor specializing in the history of classical and Egyptian art, and supplemented by a wide range of adjunct professors offering courses in both Western and non-Western art. (Appendix 6:5, notes of meetings of the core faculty discussing pedagogical objectives for HSS core courses, Appendix 6:6, stated student-learning outcomes for HTA 1-3.)

• Presenting an awareness of world cultures within the context of both the history of art sequence (HTA 1-3), the core sequence (HSS 1-4), and the elective offerings. With its broad historical sweep, the HTA sequence naturally introduces the art of ancient civilizations in the first term. At the art history elective level, recent offerings include courses on Iraq, ancient Mesopotamia and African Art, while the current catalogue provides for a still wider range of potential offerings, including courses in East Asian art, made available on a rotating basis.

With regard to H&SS, the opportunity to broaden the awareness of world cultures needs to be considered more fully. The HSS 1-4 sequence has in part been built upon pedagogy of writing in such a way that the choice of English-language materials can facilitate the development of linguistically precise analytical tools. H&SS recognizes the potential in broadening the range of materials studied, as, for example, in offering an HSS 4 course focusing on Salman Rushdie and in offerings on Latin American History (provided at The Cooper Union by a published specialist in the late colonial history).

The Center for Writing and Language Arts is configured to advance our foreign language training. At present it offers Cooper Union students the opportunity to study European languages (German, French, Spanish) as well as Japanese and Arabic, the latter the result of a Fulbright grant that has provided us with a young Tunisian scholar who is herself a native Arabic speaker. In earlier years The Cooper Union’s language offerings have included Hindi and Mandarin.

“An awareness of world cultures” as an adopted student learning outcome for H&SS deserves both further conceptualization using a broader range of electives and a deeper integration into the core sequence. This is a conclusion based on results derived from the core Exit Survey (2007) referenced below. The documentation relative to this objective includes course offerings, minutes of the Curriculum Committee concerning faculty views on course offerings and the core Exit Survey.
• Maintaining a clear focus, at all levels of the curriculum, on communication skills, information literacy (including library research skills) and extended written expression

Faculty work with the professional staff of The Cooper Union Library to introduce students to up-to-date researching tools and methods, including hard-copy tools, databases, the visual archives, and online resources both at The Cooper Union and throughout the library consortium. Writing is critical to The Cooper Union’s educational philosophy, which sees written expression as not only a means of conveying ideas effectively but as a medium through which the writer discovers her or his ideas. Attention to writing provides one of the surest loops of evaluation and assessment; most classes require 20 pages of finished written work per semester, exclusive of in-class writing, outlines and drafts.

All H&SS core classes also now require informal and informal speech from the students culminating in extended formal presentations on a student’s research subject in HSS4. The faculty is considering the possibility of video recording and analysis of student presentation work in that course.

To identify students who have difficulties with written expression, all incoming students now undergo (as of 2006) a writing diagnostic that helps Center for Writing and Language Arts associates and faculty pinpoint areas for development within a particular student’s repertoire; HSS1 is a writing-focused course in which students will typically produce both in-class analyses in response to the text being studied, write short papers, revise those papers, and engage the associates of the Center for Writing and Language Arts as part of the faculty member’s overall pedagogical strategy. A student’s progress is assessed directly by faculty feedback in terms of comments on written work, as well as the student’s responsiveness to encouragement to revise and receive further comments.

In addition there are written reports from Center for Writing and Language Arts associates to faculty in response to individual sessions with students; classroom presentations by center Director Gwen Hyman and associates reinforce positive writing skills and encourage use of the Center for Writing and Language Arts as a “physical loop site”—a place where writing and thinking skills can be developed so that the student can, in turn, take more advanced courses and return to develop with center staff more advanced writing and communication skills. The center also directly assists faculty in crafting effective assignments; it has twice run a “bring your assignment” session for critique and review. This teaching self-assessment practice has been very useful for the younger adjunct faculty in the sharing trade-craft and has been positive for older faculty wishing to renew and review their teaching practices.
Documentations for these forms of assessment include:

- The logs and notes of the Center for Writing and Language Arts, through which associates undertake a range of engagements with students (the center assessment report), including but not limited to concept and argument, drafting and revision, effective reading skills and English as a second language.
- Measurable units of student and center associate work time addressing the ongoing concerns of students and faculty.
- Written feedback by Center for Writing and Language Arts associates to faculty.

(All three forms of documentations are available in the Document Room.)

- Creating a positive and supportive environment for faculty and staff such that common goals can be pursued with energy and commitment. This needs to be pursued within Cooper Union’s fiscal constraints. Documentation includes:
  - Minutes of standing meetings of the Administrative Committee, Curriculum Committee and semi-annual Faculty Meeting.
  - Memoranda emerging from working faculty groups asked to address local and ongoing issues (e.g., options for office support; diagnosing the effectiveness and future of the core curriculum).
  - Professional development sessions on scholarly publishing made available to full-time, proportional and adjunct faculty.
  - Individual consultations between the Dean and adjunct faculty in support of the faculty member’s pursuit of full-time teaching opportunities beyond The Cooper Union.
  - Support of faculty travel to conferences.
  - Invitation of outside speakers to enrich both student and faculty engagement in the ideas at the core of a Cooper Union education.

Core Curriculum: A four-semester core sequence in the Faculty of Humanities and Social Sciences is required of every student at The Cooper Union. The core represents a carefully staged development of ideas and incremental levels of complexity in dealing with those ideas. Writing is the backbone of the four-semester sequence, and the selection of materials over the four semesters is designed to enhance that philosophy. Copies of all core course syllabi from the last four years, together with representative student papers are on file in the Document Room. All core courses have stated student learning outcomes. (Appendix 6:7, H&SS core student learning outcomes.)
Evaluation of this four-semester core curriculum is undertaken in several ways:

- **Meetings of the Faculty Team for Each Term of the HSS1-4 Sequence.**
  These faculty teams consider the objectives and student learning outcomes, semester by semester, and select common texts. Documentation: minutes of meetings.

- **Meetings of the Faculty Engaged in the Specific Semester’s Curriculum.**
  These meetings involve all instructors for HSS1 who meet several times during the semester to discuss both pedagogical strategies and their effectiveness. Documentation: minutes of meetings. (Appendix 6:8, core meeting notes.)

- **Student Course Evaluations.** Student course evaluations in the case of full-time faculty are delivered only to the instructor and, in the case of the adjunct and proportional faculty, to the Dean and then to the instructor. Faculty can use evaluations to rethink materials and methods and the effectiveness of each. In the case of adjunct faculty, the Dean provides direct written feedback to the adjunct faculty member. (Appendix 6:9, course evaluation form.)

- **Capstone Engagement.** Capstone engagement is the focus of the fourth semester of the core sequence, in which the student demonstrates her or his continuous development of writing and analytical skills in relation to the course’s chosen subject or theme. This capstone course requires of the instructor and the student a staged sequence of written outlines, drafts and revisions toward the long written paper (20 pages). (HSS4 papers are on file in the Document Room.)

- **Core Curriculum Exit Survey.** The core curriculum Exit Survey, first conducted in Spring 2007, asked students to evaluate their experience of the core sequence. The survey asked students whether their abilities on specific HSS core competencies had improved and to what extent, after taking the core courses. It also asked them to specify in which of the four core courses they had experienced improvement. Thus, the survey measured two aspects of improvement in HSS core courses: the extent of improvement and the level of improvement. (An executive summary, the full results, and student written opinion about the core curriculum are at Appendix 6:10, 6:11 and 6:12). The data were divided into global data, competency data, and course data.

The five competencies that showed the highest level of improvement (as measured by mean scores):

- Ability to carry out literary analysis in papers (3.51, 57.25 percent).
- Ability to structure a clear, cogent argument-driven academic essay (3.50, 56.83 percent).
- Ability to think through writing (3.47, 51.45 percent).
- Ability to express ideas in writing (3.45, 53.28 percent).
- Ability to conduct research topics in the humanities and social sciences (3.43, 49.29 percent).
The five competencies that showed the lowest improvement levels were:

- Ability to present research and other work to your peers in formal presentations (2.93, 31.88 percent).
- Understanding of the structures and functions of literary genres (2.76, 27.41 percent).
- Ability to understand global perspectives on a modern historical development and to discuss them with your peers (2.68, 27.94 percent).
- Ability to conduct thoughtful conversations about politics with your peers (2.56, 24.44 percent).
- Ability to identify and evaluate scientific and technological contributions to the making of the modern world (2.24, 14.93 percent).

Before the next iteration of the core Exit Survey in April 2008, tighter links between the questions and stated student learning outcomes, a student review of the findings of the Exit Survey and formal review of the survey by the curriculum committee will be achieved.

In addition to offering general education courses to all Cooper Union students, the faculty maintains an active program in the history and theory of art that offers required courses for students in the School of art and electives to those in all three schools. During each semester of the Art History Core Curriculum, students are assessed through a variety of methods. These regularly include one or two papers of 4-6 pages in length, one or more 8-10 minute oral presentations, often given on-site at one of the local museums, and two comprehensive two-hour examinations, typically consisting of some combination of slide identifications, definitions, short-essay slide comparisons and long-essay questions.

**Department of Mathematics**

The Department of Mathematics has a mission to provide a high quality mathematics education in support of and consistent with the high quality educational programs in the Schools of Engineering, Architecture and Art.

**Goals and Assessment**

- **The maintenance of a mathematics curriculum that supports the curricular needs of the five engineering programs and the science programs.**

The status of this goal is assessed by formal discussion and approved by motions in the Curriculum Committee of the School of Engineering. Major motions are recommendations made to the full faculty and must then be debated and voted on by the faculty. Also, there are regular informal discussions between members of the Department of Mathematics and both faculty and student members of the Departments of Engineering and Science.
• The delivery of courses delineated in the curriculum to the students that satisfies the needs of these other curricula and related courses.

The most important method of assessment concerning the delivery of effective courses is by means of examination (principally) and projects. In some courses, examinations are class- (section) specific, and in some (e.g.: Calculus I and Calculus II), examinations are uniform across all sections.

• To develop a spectrum of support services from meeting the needs of students having difficulties in mathematics to enrichment of the mathematics program to challenging students with above average abilities in the field.

Assessment here relates to the use of such support services. In that regard the tutorial services of upper level students tutoring first and second year students is in constant use. The office hours of mathematics faculty are fully used by students as well. The challenging Putnam mathematics competition is an ongoing annual event. In addition there has been a constant stream of independent study mathematics courses supervised by mathematics faculty in recent years. Input from the students is crucial in this regard.

• To maintain communication with students, faculty and administration concerning any of the matters that fall under the auspices of the Department of Mathematics.

In addition to the matters of curriculum and course development and delivery, and the support services mentioned above, there is the very important matter of team teaching and “bridge courses” between the Department of Mathematics and the other departments in the School of Engineering and entities outside The Cooper Union.

• To also meet the mathematical needs of the School of Architecture and the School of Art of The Cooper Union.

Assessments are done principally by means of communication with the faculty, administration and students in those schools of The Cooper Union.

Department of Physics

The Department of Physics has a clearly stated mission, program goals that flow from the mission, and course-specific goals and student learning outcomes for its four central courses: Physics I: Mechanics, Physics II: Electromagnetic Phenomena, Physics III: Optics and Modern Physics and the Introductory Physics Laboratory.

Formal assessment procedures in the Department of Physics began at the end of the Fall semester of the 2006-2007 academic year. For Physics I the Force Concept Inventory (FCI) was given to all 115 freshmen taking this required course. In the exam, the average pre-test score was 68 percent, a very strong pre-test score. The average post-test score in Ph112 was 86 percent, an exceptionally strong score. The Cooper Union result is notable both for its high absolute value and for the percent gain between pre- and post-test.
The positive results, well above the national average, are unusual. Assessment in Ph112 will be repeated next year, and perhaps another exam (likely the more difficult Mechanics Baseline Test) will be administered in place of the FCI. However, it is clear that most results indicate improved scores. A full description of the Ph112 assessment is available in the Document Room and at the Department of Physics assessment website (http://physics.cooper.edu/assessment/).

The Modern Physics (Ph 214) course employed a math pre-test to assess the student competence in the mathematical prerequisites required at the level of the course, which includes the topics of intermediate optics, special relativity and quantum theory. The mean score was 2.2, with 127 students taking the exam. Nearly all of the students taking the pre-test had completed the basic course in linear algebra (Ma110), Calculus I (Ma 111), Calculus II (Ma113), Vector Calculus (Ma223). Approximately 60 percent of the students had completed Probability (Ma224) and Differential Equations (Ma 240).

For physics concepts, the department has evaluated a new survey inspired by the FCI. The Quantum Mechanics Conceptual Survey (QMCS) is intended to assess student’s understanding of the fundamental concepts underlying quantum mechanics. This survey will be administered to the Ph 214 class this semester, Fall 2007. It will be given as both a pre- and post-test to assess the level of improvement of individual students and to compare to the performance at other institutions.

A standardized examination consisting of thirty multiple choice questions was given to students in Ph213 at the end of the Fall 2006 semester. Twelve of those questions made up the magnetism portion of the Conceptual Survey of Electricity and Magnetism (CSEM), a widely used assessment tool. The CSEM has been administered to 5,000 introductory physics students at 30 different institutions during the period 1997 to 2001.

All 12 of the CSEM magnetism questions were used in the Ph213 final, along with 20 additional questions. The test results are impressive. The average score for a Cooper Union student was 75 percent. The results for Cooper Union engineering students fell between the results for physics majors/physics graduate students (70 percent) and results for professors at two-year colleges (78 percent).

The assessment program is in its infancy, and how the results of the assessment testing will be used to improve the program has not been determined. However, it is expected to show that certain topics within the syllabi would benefit from additional emphasis.
Department of Chemistry

The Department of Chemistry’s stated goal is to offer “to all engineering students at least 7.5 credit-hours of fundamental chemistry courses during their freshman year,” hence it directly reflects a general education requirement.

In order “to give Chemical Engineering majors, as well as other majors who have the interest, an appreciation of more advanced concepts in Chemistry, as well as the possibility to explore research opportunities,” six strategies are outlined.

- **Students are required to take courses in Organic and Physical Chemistry.**
  Students are provided with lectures, textbooks, homework, and offered one-on-one sessions. Assessment is informed by students' performance in their class and on homework and examinations and feedback from engineering faculty.

- **Advanced laboratory courses in Organic and Instrumental Analysis are required to give students the opportunity to apply the principles that they have learned in their lecture courses.**
  Students receive an introduction to experimental design, data sampling and handling and report writing. Learning outcomes are assessed by evaluating pre-lab preparation, laboratory reports, in-class laboratory evaluation, as well as a final report and presentation.

- **Provide elective courses to those students with an interest in biochemistry, environmental chemistry, and advanced organic and physical chemistry.**
  These courses add to the understanding of chemistry for upper class students. For assessment of in-class performance, homework assignments and examinations are evaluated.

- **Students are required to take a full year of Freshman Chemistry, which covers a broad range of topics in basic chemistry.**
  Students are provided with lectures, textbooks, homework, and offered one-on-one sessions. For assessment, students' competence in class and on homework and examinations is evaluated.

- **Students are required to take a full year of Freshman Chemistry, which covers a broad range of topics in basic chemistry.**
  Students are provided with lectures, textbooks, homework, and offered one-on-one sessions. For assessment students' competence in class and on homework and examinations is evaluated.

- **A chemistry laboratory designed to introduce students to data collection and analysis, proper and safe laboratory techniques and technical report writing.**
  Students take away an introduction to laboratory safety, including the importance of MSDS sheets, data analysis and technical report writing. For assessment, students are evaluated via their pre-lab preparation, laboratory reports, laboratory notebooks, as well as through in-class laboratory evaluation. (Examples of student work in chemistry are in the Document Room.)
RELATED EDUCATIONAL ACTIVITIES

Treating the public programs of The Cooper Union and other forms of extension and outreach within a discrete standard presents something of a paradox since the institution was founded precisely to offer courses and instruction to the general, although targeted, public. In the recent past, Cooper Union publications have even noted that The Cooper Union was first in the field of adult education, and this is true if one discounts severely the history of mechanics institutes and lyceums. Since 1950, with dissolution of the Division of Social Philosophy, the status (in terms of the allocation of internal resources) of The Cooper Union’s public programming has created unique niches and is different from that of other degree-granting schools.

In addition to Continuing Education and Public Programs, the three schools also run outreach programs that involve faculty, staff, students and resources. Indeed, the need for resources, especially physical resources such as classroom, studio or laboratory space, is becoming an important issue. Demolition of the Hewitt Building to make room for the new academic building has sharpened this need, and competition for resources can be fierce. For The Cooper Union to maintain its outreach and public services and at the same time provide for the education needs for its own students, a new approach to space allocation and priorities must be developed. In the new academic building, space will be at a premium; an ongoing mechanism for fielding requests for space, allocating space and assessing and prioritizing needs must be in place. The planned centralized scheduling will facilitate this process.

One of the stated goals of the 2000 strategic plan was a more concerted effort to renew the effectiveness of Public Programming and of Continuing Education at The Cooper Union. The effort was to realign The Cooper Union’s Continuing Education and Public Programs with the core academic mission of the institution, creating significant opportunities for professional development, while generating additional revenues to support the college’s degree programs.

The Department of Continuing Education and Public Programs operates under a plan to position its portfolio as a fourth leg of The Cooper Union, and the department’s business plan has been to contribute to the financial strength of The Cooper Union. Figure 19 below illustrates the increases in college revenue attributable to Continuing Education and Public Programs over the past nine fiscal years.
The principal thrust of the past five years has been the addition of Professional Development courses to the existing portfolio of life-enrichment courses. Professional Development courses—created for practicing architects, designers, and engineers—cover such subjects as Acoustics for Architects, Steel Construction Codes, Final Cut Pro, 3D Modeling with Rhino and Maya, Technical Writing, Architectural Photography, Digital Type Design, and Cost Estimating.

Enrollment has grown from approximately 2,000 registrations per year to approximately 3,000. Tuition revenue has increased by over 230 percent since 2001. However, until the opening of the new academic building, the number of registrants cannot realistically be increased, if at all.

In addition to measuring the increase in enrollment, evaluation forms are distributed to all students. These forms are evaluated and teachers are retained, counseled, or let go accordingly.

A new platform that allows online registration, capture of demographic information, and data-mining will be running for the Fall 2007 term and will, among other things, enable tracking of returning students and identifying those courses and faculty members that are most likely to promote retention.

A new marketing approach has been responsible for much of the increase in enrollment. Using an analysis of zip codes in which our registrants live enabled advertising locally by give-away newspapers such as the Westsider, AM New York, and Metro. The New York Times also distributes copies of our catalogue in selected zip codes. The program also added radio spots and, most effectively, advertising on Google with over 100,000 “hits” to date.
Public Programs

There are more than 100 programs a year to which the public is invited. About half of these are sponsored or co-sponsored by the Department of Continuing Education and Public Programs. Appendix 6:13 lists a number of outstanding programs that the public has been able to attend at The Cooper Union over the past few years. These programs are publicized through ads in various publications and an electronic monitor placed in the School of Engineering building that is visible from Astor Place.

Among the most visible of the public programs this year is The Cooper Union Dialogue Series for Presidential candidates. This series is bringing the candidates to a platform which should elicit a reasoned discussion of vital issues rather than brief sound bites. Other programs have brought leading thinkers from around the world to the Great Hall, including heads of state, American political figures, giants in literature, leading scientists and world-renowned architects, artists and philosophers.

Space Rentals

The Department of Continuing Education and Public Programs rents space to outside companies, not-for-profit organizations, etc., for activities that are in keeping with the identity of the institution. These events can be concerts, dance recitals, fund-raisers, art exhibitions, commercial exhibitions, film shoots, lectures, panel discussions, etc. For most of these events, we require free admission for all students, faculty, and staff of The Cooper Union. Rental revenue is currently running at about $200,000 per year.

The School of Art Summer Residency Program

With an aim to raise funds in support of The Cooper Union’s mission of providing students with full-tuition scholarships, in 2003 the School of Art initiated a tuition-bearing continuing education program in the form of a summer residency. The non-credit program is designed for emerging and mid-career visual artists to develop their work in the studio while gaining exposure to the renowned artists, curators, galleries, and museums that New York City has to offer. The program culminates in a public exhibition at The Cooper Union. Staff from the School of Art organizes the program, with guest faculty invited to give lectures and critiques. Table 29 below indicates the increasing net annual income from the program from 2003 to 2007:

<table>
<thead>
<tr>
<th>Year</th>
<th>Residents</th>
<th>Net Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>15</td>
<td>$11,718</td>
</tr>
<tr>
<td>2004</td>
<td>35</td>
<td>$80,366</td>
</tr>
<tr>
<td>2005</td>
<td>24</td>
<td>$88,675</td>
</tr>
<tr>
<td>2006</td>
<td>28</td>
<td>$102,118</td>
</tr>
<tr>
<td>2007</td>
<td>20</td>
<td>$66,668</td>
</tr>
</tbody>
</table>
In 2004, the Summer Residency Program offered Painting and Drawing, Photography, and Printmaking for a three-week residency. By 2007, in response to participant feedback, we accepted fewer residents, feeling that the cost of the fellowship, compared to similar residencies in New York City, should provide larger studio spaces. The concentration of the program was changed in name to Painting and Mixed Media. The residency has received very positive feedback, with residents citing the high-caliber roster of visiting artists, its location in New York City, and The Cooper Union’s facilities as reasons. The number of residents is now around 20, down from a maximum of 35 in 2004.

Saturday Outreach Program
The Saturday Outreach Program provides free studio arts education to New York City high school students and is entirely funded by external support. Since 1968, when it was started by a group of undergraduates in The Cooper Union School of Art, the program has served more than 8,000 students. The program includes college counseling, portfolio preparation and writing workshops.

The Outreach Pre-College Program is a full-scholarship program for New York City-area high school students, grades 10-12. Classes include drawing, printmaking, photography, two- and three-dimensional design architecture courses, creative writing and contemporary art issues. The Outreach Pre-College Program is designed to serve the needs of students who, because of economic circumstances or lack of support at school or home, may not have access to such programs. High school students enrolled in either a public or private school are eligible to apply to the program through a portfolio review held four times throughout the year. Each seasonal program is designed to meet the specific needs of the sophomore, junior or senior student interested in building a portfolio. Final class enrollment is determined by a faculty panel.

All classes are taught by Cooper Union faculty and undergraduate teaching assistants, and are held on Cooper Union’s campus and provide students with a valuable pre-college experience in visual art and creative writing.

The Outreach Program also sponsors the annual artist-teacher summer residency at The Cooper Union. This award is given to outstanding artists who are teaching K–12 in the New York City area. Professional studio spaces are provided in the Painting and Drawing Department for two to five weeks in summer.

Assessment is built into the Saturday Outreach Program through ad hoc committees of faculty, staff and advisors. The committees address the following main issues: population served, access, enrollment criteria, pedagogical strategies, curricular goals, facility standards, staffing and funding. Other indicators include: the quality of student work, retention rate and the rate of college or professional school admissions among its senior-year students.
Students are evaluated and reviewed by portfolio to be accepted into the program. Each week, individual and class work is critiqued. Attendance is monitored, and students and teachers are contacted by the Director if problems arise. Exhibitions that represent the quality of the student work and teaching effectiveness are mounted seasonally and seen by a faculty peer group and the Dean of the School of Art.

Student feedback is given in Exit Surveys before students leave the program. Also, information is gathered about the colleges they are applying to and the colleges that have accepted them.

Recurring responses to Exit Surveys include:

- Appreciation for the diversity of their classmates and the feeling that it enriches the learning experience as compared to their art classes at school.
- Increased self-esteem, greatly improved communication skills and boosted confidence through the writing classes and the critique of their own artwork.
- The necessity of scholarships, an indication from most responding students that they could not have taken part in the Outreach Program had a fee been imposed.

**Research Internship Program**

The Research Internship Program is designed to offer high school students the opportunity to tackle research problems in a college setting. Each project is supervised by Cooper Union faculty and covers fields such as civil, chemical, electrical, mechanical, biomedical and environmental engineering; mathematics; chemistry; physics and astronomy. This intense six-week research experience is designed to give insights into scientific and engineering professions; a chance to interact with talented undergraduate students in a university environment; and the rewards that come with the challenges of undertaking real research. About 75 students enroll annually, and although this program is a public service and not intended as an aid to recruitment, about 13 percent of participating students have been admitted as undergraduates to The Cooper Union.

Each research project is complemented by lectures and discussions led by Cooper Union faculty. These lectures add to the knowledge of mathematics and science the interns have gained at their respective high schools and demonstrate how the lecture subjects form the foundation of the engineering disciplines.

In addition to this technical training, the program includes workshops on oral presentations, technical writing, career choices, college admissions as well as introductions to The Cooper Union’s library resources and computer facilities. Typically, projects include a field trip to a research laboratory to enhance the internship experience. The culminating experience of this program is the presentation of the work to an invited audience.
**Immigrant Re-Training Program**

The Immigrant Re-Training Program is a collaborative effort between The Bnai Zion and The Cooper Union. The program helps immigrant engineers and scientists maintain self-reliance and economic independence through productive employment. The mission of the Re-Training Program is to offer participants the opportunity to update their skills and work in their chosen fields by offering them professional courses and job placement assistance. The program is free of charge.

The Cooper Union provides the courses, instructors, facilities and equipment. Bnai Zion conducts outreach, offers students career counseling and job placement services, and workshops for English language skills. Since the inception of the program, the Re-Training Program for Immigrant Engineers has taught more than 3,000 students and placed approximately 1,700 of them in jobs.

**Suggestions and Recommendations**

The quality and dedication of The Cooper Union's faculty remain the most important factors influencing the success in the education of students. The Cooper Union's attention to the condition of the faculty—size, deployment, workload, compensation, assessment, promotion and tenure, governance, personnel policies—is a major component of institutional effectiveness.

This self-study:

**Recommends** that more funds be allocated for research and professional development (including conferences, development of independent projects, team teaching, equipment of laboratories or studios, funding of research, etc.) in all schools, H&SS, the Library and all departments. An increase in funds and other support should also be provided to assist faculty in their efforts to secure external research grants. The steering committee recommends that, aligned with the new strategic plan, procedures for application for and disbursement of such funds be clarified and codified for all schools, H&SS, the Library, and all departments.

**Recommends** that the institution makes funds available for exhibitions and publications that can trigger matching funds.
**Recommends** that mechanisms for assessing the need for resources and allocating those resources be put in place as soon as possible prior to moving into the new academic building. Allocation of studio, laboratory and office space for faculty must be done in a transparent, reasonable way based on agreed criteria. Also, assignment of classroom, studio and laboratory space and scheduling must provide suitable priority to the programs for the three schools and H&SS.

**Suggestions** emerging from this self-study are that The Cooper Union should review the composition of its faculty with respect to:

- The distribution of full-time faculty in each school.
- The ratio of full-time and part-time faculty.
- Faculty salary compression.
- Increasing the racial and ethnic diversity of the faculty.
- Differential adjunct compensation.

As the financial situation of the institution continues to improve, it is important that new, full-time, tenure-track faculty members be hired, in all schools and in H&SS. This suggestion, and the first recommendation, are directly taken up by the first goal of the new strategic plan 2007–2012 and its associated strategies.
Chapter 7
Educational Offerings and Assessment of Student Learning: Middle States Standards 11 and 14

The Cooper Union is justly proud of its programs in art, architecture, and engineering. Attempting to live up to the standard of “outstanding” is declared in the statement of mission. Due to its compact size and its urban environment in comparison to the size and environment of a large research university, The Cooper Union must set its own bar of “excellence.” As a predominantly undergraduate institution, excellence in teaching must be its raison d’etre. To this end, all programs at The Cooper Union, regardless of discipline emphasize:

- Student access to faculty.
- Project-based learning.
- Summative research or studio practice.
- Integrative first-year experiences.
- Professional ethics and social awareness.

The academic rigor and consistent focus on student success in The Cooper Union’s three professional schools and the Faculty of Humanities and Social Services (H&SS) has attracted students and faculty to create an educational community that is among the most selective in higher education in the nation.

The Cooper Union rankings or listings are as follows:

- Listed by Newsweek-Kaplan as one the “Nation’s 25 Hottest Universities.”
- Ranked by U.S. News and World Report as one of the top two colleges in Chemical, Computer and Electrical Engineering and third in Civil Engineering among undergraduate programs.
- Ranked third among top research cultures in Architecture worldwide in a survey by the Key Centre for Architectural Sociology.
- Listed in “The Best Northeastern Colleges” and “The Best Value Colleges” by The Princeton Review as “…one of the best overall bargains—based on cost and financial aid—among the most academically outstanding colleges in the nation.”
- Listed in the New York Times as one of the most selective colleges in the U.S.
- Listed in Business Week as one of the Best Design Schools for Creative Talent.
This chapter first surveys the programs of the three professional schools. It then presents the process of student learning outcomes and assessment in each. Due to accreditation standards within National Architectural Accreditation Board (NAAB), National Association of Schools of Art and Design (NASAD) and the Accrediting Board for Engineering and Technology (ABET), all three schools have extensive experience in assessing student learning relating to their disciplinary strengths. Finally, it examines the institution-wide assessment measures, both external and indirect.

PROGRAMS

Irwin S. Chanin School of Architecture

Program Description

The mission of the Irwin S. Chanin School of Architecture is to provide for its students the finest professional education available within an intellectual environment that fosters and expands their creative capacities and sensibilities and establishes the foundation for a productive professional life. The school is committed to the belief that one of society’s prime responsibilities is to promote learning and education in the deepest sense: that the exercise of individual creativity within a willing community is a profoundly social act. Fundamental to the mission of the school is the maintenance of an atmosphere in which freedom of thought and exploration can flourish—where students can explore and utilize their unique and individual talents, interests, and modes of working, to their highest potential.

Curriculum

The architecture curriculum is designed to prepare students for an array of opportunities in the profession, offering a cultural and intellectual foundation in the liberal arts as they relate to the design of the environment at all scales. The discipline of architecture is interpreted in the widest possible sense as a basis for a fully rounded education at the undergraduate level. Students develop their knowledge and design skills within a framework of studios and courses that stimulate research and debate into the nature and role of architecture as a cultural practice with broad social and environmental implications. In a moment when the nature, role and scope of the architect are rapidly assuming new directions and dimensions, in both the social and technological domains, the school emphasizes the principles of design and their underlying human values, while preparing students to respond positively to change. The program seeks to engender a strong sense of the ethical responsibilities of service, leadership, teamwork and individual creativity essential to the development of principled professionals dedicated to interpreting the spatial needs of the community and constructing in accordance with those needs. Stressing the fundamentals of architecture, and with a basic commitment to their continuing renewal, the curriculum encourages the production of an architecture distinguished in concept and rich in significance.
The curriculum as a whole is intended to provide the student with a substantive foundation for architectural practice conducted at the highest standards of professional integrity. The program comprises five carefully structured years during which the students take design studios and related courses that work cumulatively to establish a foundation of knowledge and skills essential to personal development and a career in architecture. As components of a five-year undergraduate program, the professional courses are framed within the context of a rigorous liberal arts education that includes a wide range of required and elective courses in H&SS, and elective opportunities in all three schools. In this way the discipline of architecture is presented as a cultural, social and technological practice with profound implications for society and the environment, both natural and man-made.

The five-year Design sequence is carefully structured to introduce the student to the principles of architectonics and the investigation of program, site, structures and environmental and building technologies in a comprehensive and integrated curriculum. The studios progress from an introduction to the basic elements of form, space and structure, to complex institutional design problems in their urban context, culminating in a thesis that demonstrates the student’s ability to synthesize a comprehensive understanding of architecture in society. The traditional and essential skills of drawing, modeling and design development are complemented by a full investigation of the analytical and critical uses of digital technology. Studio exercises encourage an inventive manipulation of materials and three-dimensional representational techniques at all scales. The appropriate means to resolve the myriad pragmatic concerns of architecture are addressed in detail in a sequence of professional courses in structures, environmental and building technologies, construction management and professional practice.

The history, theory and cultural context of the discipline is investigated through a broad spectrum of specialized courses, including Modern Architectural Concepts; Analysis of Architectural Texts; Landscape Architecture; and Advanced Topics in History, Theory and Criticism. The study of world architecture and urbanism is deepened by the understanding of individual cultures and environmental and technological issues at every scale.

*The Five-Year Sequence*

The five-year sequence is described as follows, year by year:

- **The first year** is conceived as a broad introduction to society, culture and environment, and the nature, place and role of architecture in this context.

- **The second year** advances the students’ knowledge of architecture, historically and culturally, while developing critical thought. In this year students begin the study of structures. The second year Design Studio is dedicated to the examination of the elements of architecture, including program, site, spatial organization, structure and environment and the precedents for specific programs and their resolution in complete buildings.
- **The third year** is conceived as an integrated introduction to the social, technological, environmental and programmatic understanding of architectural design. Assignments in Building Technology, Structures and Environmental Technology are drawn from and play back into the projects in the Design Studio. The third year Design Studio is developed as an introduction to the complex components of building design as the students gain progressive knowledge of technological, environmental and structural systems.

- **The fourth year** is envisaged as a year that studies architecture in its urban context, while advancing students’ knowledge of technological and environmental concerns. In order to encourage the in-depth investigation of institutional and urban architecture, Design IV is now divided into two distinct studio experiences. One is an integrated study of a single institutional building on an urban site, requiring the development of a complex and heterogeneous program from an outline. The other is devoted to the understanding of the architectural implications of urban design, studying the comparative architecture of cities as an introduction to the planning, zoning, social, and cultural implications of urban architecture.

- **The fifth year** is constructed around the students’ development of their thesis. The thesis is understood as the detailed elaboration of a specific architectural idea or complex of ideas through the means of a specially selected program and presented in architectural terms.

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**School of Art**  
**Program Description**

The mission of the School of Art is to “educate artists in the broadest sense, both as creative practitioners engaged with a wide range of disciplines in the visual arts, and as enlightened citizens of the world who are prepared to question and transform society. The program is structured around an integrated curriculum that fosters connections between disciplines as well as between traditional and new media. The studio experience affords the opportunity for the development of individual artistic vision in dialogue with collective debates and experiments within an intimate community of artists. The study of history, theory and criticism in the visual arts and general studies in the humanities and social sciences are considered essential in intellectually grounding studio practice. Central to the school’s philosophy is the advancement of the artist’s role in initiating critical responses and alternative models in relation to the prevailing forms and institutions of cultural production. Students are challenged to expand their research and experimentation across The Cooper Union, as well as in the surrounding urban environment and in the wider public sphere.”

The goal of the generalist BFA program in the School of Art is to educate students in the skills, knowledge and understanding necessary for professional practice in art- and design-related fields. The integrated program not only instructs students in specific disciplines, but also in the complex interrelation of all visual vocabularies.
The first-year Foundation Program consists of a series of prerequisite courses. This introductory year is designed as a basis for the entire educational program of the School of Art and is intended to prepare students for studies in all of the disciplines offered within the curriculum. Through exposure to a variety of two- and three-dimensional projects, students are given an intensive introduction to the specifics of visual and spatial phenomena, and to concepts, principles and techniques of the visual arts through a rigorous studio experience of product and critique.

The program after the Foundation opens up to a series of prerequisite choices, advanced studio offerings, and free elective technique and seminar classes within the discipline concentrations of Drawing, Graphic Design, Film/Video, Painting, Photography, Printmaking and Sculpture. Students are encouraged to take ownership of their education. There is no vertical ladder of accomplishment. Students are in some classes with sophomores, juniors and seniors. The choice of classes is content-driven and predicated on the aesthetic and intellectual trajectory of students’ work. In addition to the distribution of 24 required credits in Core Humanities /General Studies Electives, and the 18 required credits in Art History, the curriculum allows 11 credits of free electives to be taken in any course offered by the Schools of Architecture and Engineering and the Faculty of Humanities and Social Sciences.

Students are not allowed to concentrate in any one discipline until their junior year, thus ensuring a broad critical and aesthetic perspective of the nature of studio practice. The School of Art is committed to a pedagogical philosophy embracing a generalist posture of education that is fully integrated across disciplines, extending beyond the School of Art to the complete curricular offerings of the college, and considers this intellectual integration to be at the heart of the education of an artist.

**School of Art Certificate Program**

The Certificate of Art program in the School of Art at The Cooper Union started after World War II to serve returning military personnel interested in an art education. Today the program is offered to a small number of students. It exists as an alternative to the BFA program. Students who enroll in the Certificate of Art program on a full-time basis must take 60 credits in two years. Students may choose the part-time option of taking at least 15 credits a year, with completion in four years.

The Certificate of Art program requires 22 credits in Foundation studio and at least 29 credits in advanced studio classes. Students may take up to 9 credits in art history classes. Other than Art History requirements, there are no general education requirements. The program continues today to serve students who already have a degree from other institutions.
**Albert Nerken School of Engineering**

**Program Description**

The Albert Nerken School of Engineering offers degree programs in chemical engineering, civil engineering, electrical engineering and mechanical engineering. A fifth program, the interdisciplinary degree in engineering is new, and permits a student to customize his or her educational program to suit interests that cross traditional disciplinary borders. Biomedical engineering, robotics and energy are examples.

A defining characteristic of the School of Engineering’s curricula is the integration of practical, real-life projects into theoretical classroom learning; this is called “project-based learning.” It cements and crystallizes theoretical presentations by testing the mathematical, engineering and scientific axioms with practical implementations in laboratories and independent projects. This approach is valued by students, employers, alumni and faculty, as well as our advisory constituents, such as the engineering advisory board. These experiences begin as early as the first year and culminate in a year-long senior capstone design course.

The scientific and engineering aspects of the school are challenging and rigorous. However, there is a complementary emphasis of the student/graduate as a member of society and as a citizen. Students have a high exposure to the humanities and social sciences through core and elective courses provided by the Faculty of Humanities and Social Sciences. Through mandatory professional development workshops and seminars, students are introduced to issues such as ethics, effective communication, current affairs, workplace issues, time management, career development and professional certification.

The first year of a student’s experience consists mainly of foundational courses in mathematics and the sciences, with one or two courses that relate to the individual majors. All students are advised by one specialist advisor who is skilled in helping them move from their high school experiences to the more demanding, challenging education of a leading engineering school.

The second year is a transitional year in which students come under the direct guidance of faculty advisors in their chosen majors. In this year there are many more courses that go towards their major. Even core courses are taught in sections that emphasize the particular needs of each degree program.

As students progress through their third and fourth years, they learn and practice the application of their knowledge to new problems and projects. Results of their efforts are often submitted to national competitions, from circuit designs to chemical plant designs to racing concrete canoes to racing cars. All students are required to present their results both orally and in written form—the school considers communication skills to be critically important.
During these four years, many students participate in the School of Engineering’s Study Abroad Program. This consists of a summer research and cultural experience in countries all over the world. All participants produce a written report on what they learned both technically and culturally, and elective credit is awarded on that basis.

Other students are selected for research internships in industry and academia. These experiences often lead to employment or graduate opportunities when the students graduate from The Cooper Union.

The engineering students at The Cooper Union are able and talented, and all aspects of the engineering programs challenge and support them in achieving their highest levels of performance. Since 1998, the school has developed, implemented and maintained sophisticated, appropriate multi-faceted assessment programs to monitor and inform on the success of the programs. Subsequently, there have been several important improvements in all the programs, especially in the introduction of more flexibility, cross-disciplinary and inter-disciplinary opportunities and experiences and more elective freedom. All programs were successfully re-accredited by ABET in 2001 and 2007.

The undergraduate program is complemented by the graduate ME degree program. Here a student may obtain a masters degree in civil, chemical, mechanical and electrical engineering.

Students gain an ME via an integrated BE/ME route, which allows a student to begin graduate study before obtaining the BE degree, resulting in the award of both the BE and ME during the same year. Students take five years, typically, to graduate with those combined degrees. Alternatively, the non-integrated approach is more traditional, and a student is admitted to the Master’s program after graduation with a BE degree.

Student learning is enhanced by the Master’s program, for it enables the School of Engineering to:
- Attract and retain highly qualified faculty.
- Allow faculty to do high-level research with graduate students.
- Enable partnerships with other institutions, such as universities, hospitals and corporations.
- Provide a test-bed for curricular innovation.
- Offer a wider range of advanced elective courses.
- Allow students to show demonstrated success at the graduate level.
- Allow students through the integrated bachelors/masters program to have a launching pad for a more advanced position in their careers.
The intellectual level at which the graduate program operates is high, and the research level required for the thesis is demanding. Research ranges from new technologies, such as nanotechnology, through biomedical engineering, to sophisticated mathematical simulations, to patented breakthroughs in energy transfer and chemical analysis. Often undergraduates join faculty and graduate students on these projects and may receive engineering elective credit for their work. The program is almost entirely made up of Cooper Union undergraduates who continue on to careers or graduate schools. There is no intention to expand the program to graduates of other institutions. An exception to this is a plan to offer clusters of specialized courses to practitioners in industry on a “certificate” basis, in line with our teachings of life-long learning and the commitment to community service. (Appendix 7: 1, graduate degree requirements; appendix 7:2, list of graduate theses 2002-2006.)

The opportunities and ways to exploit an engineering education at The Cooper Union are many and various. However, the pathway chosen by each student will thoroughly exercise his or her talents and abilities, providing the student with an education of which to be proud.

STUDENT LEARNING ASSESSMENT

Architecture
Professional Accreditation
Since the previous Middle States visit, the School of Architecture has had two reaccreditation reviews by the National Architectural Accreditation Board (NAAB), the only agency recognized by registration boards in the United States to accredit professional degree programs in architecture. The reaccreditation process consists of two primary components: the Architecture Program Report (APR) prepared by the program and submitted to the NAAB prior to the end of its accreditation term, and the Site Visit, generally scheduled for the spring following the submission of the APR. The Site Visit results in a Visiting Team Report (VTR) and a recommendation regarding reaccreditation.

The NAAB conducted Site Visits in Spring 2002 and Spring 2004. The VTR of 2002 noted several concerns regarding the program in the areas of facilities, planning and assessment and a number of student-performance criteria (Appendix 7:2, VTR 2002). In June 2002, the school received a reaccreditation term of three years from the NAAB, and the subsequent Site Visit for reaccreditation was scheduled for Spring 2004, or 21 months subsequent. (The compressed time between accreditation visits was due to the fact that the Site Visit originally scheduled for Spring 2001 had been postponed twice. The first postponement was requested by the school in order to allow the faculty and administration to focus on the school’s search for a new Dean following the retirement of John Hejduk, who had been Dean for 36 years; the second was the result of the NAAB’s canceling all Site Visits scheduled for Fall 2001, following the terrorist attacks in New York City and Washington, D.C. on September 11, 2001.)
Following the Site Visit of 2002, the school sought to examine and clarify the principles by which its future would be guided, recommitting itself to traditional areas of strength while assertively addressing areas of concern raised by the visiting team as well as by the faculty, students and alumni. The results of that self-analysis and evolution are contained in the 2003 APR. Highlights include:

- Working with Institutional Research and the full-time assessment professional at the college, the Curriculum Committee of the School of Architecture developed an assessment plan to serve as an active instrument for the evaluation and evolution of the curriculum. The assessment plan defines the goals of the program, the position of every course in the curriculum in support of these goals, and the expectations or outcomes for each course in the curriculum as it is presently configured. Course descriptions previously developed by individual faculty for the 2000 APR were used to construct the assessment plan, effectively engaging the entire faculty in its development.

- The Curriculum Committee developed course questionnaires for student comments regarding individual courses. The questionnaires were reviewed and approved by the faculty and first implemented in Spring 2003. The completed questionnaires are provided to individual faculty and if appropriate, discussed with the Dean. (Appendix 7:3, APR 2003.)

- The Dean, in planning the following semester and year, meets with each individual faculty member to discuss progress in teaching, research goals and professional practice. These meetings are considered in teaching and studio assignments.

This effort was noted as very successful in the NAAB 2004 VTR: “This condition [program of self-assessment] was well met, both in terms of response to the last VTR and in the forward-looking direction of the school in its strategic planning. The surveys, planning activities, and formal feedback the school engaged in after the last visit has resulted in immediate, comprehensive, and direct program impact, and curricular changes have resulted in immediate, comprehensive and direct program impact, and curricular changes have occurred in addition to the development of a new strategic plan.” (Appendix 7:4, VTR 2004.)

**Student Learning Outcomes Assessment in Architecture**

Assessment and development of the curriculum occurs on an ongoing basis through the Curriculum Committee. The Curriculum Committee composed of the Associate Dean (who is the permanent Chair), two full-time or proportional faculty, one adjunct faculty representative, and one student representative. Ex-officio members include one alumni representative, the Dean of Admissions and Records and the President. The currently elected committee includes representation from the faculty teaching design, history/ theory and technologies courses. The Curriculum Committee will generally meet 6-10 times each academic year to discuss and take action on a wide range of topics. The governance requires that certain recommendations from the Curriculum Committee be reviewed and voted on by the Administrative Committee before being sent to the faculty for discussion and final vote.
Assessment of student learning, which in turn informs the work of the Curriculum Committee, other committees and the voting faculty, occurs through many formal processes as well as informal traditions in the school.

**Admissions Process**

During the admissions process, the school and prospective students engage in an active dialogue through the Home Test required of all prospective students, including transfer applicants. The Home Test is the first conversation with prospective students. Through the test, the Admissions Committee (comprising full-time or proportional and adjunct faculty as well as a voting student representative), can assess a very diverse group of applicants through their responses to a common set of intentionally open-ended questions. The nature and content of these questions also provide applicants with a greater understanding of the mission and methods of the school. For 2007 entrance, 578 students submitted a preliminary application for admission, while 351 completed their application by performing and submitting a Home Test.

**Assessment Plan**

During the 2002-2003 academic year, the Curriculum Committee developed an assessment plan that organized all required courses of the curriculum according to five broad program objectives in support of the mission. The accomplishments expected for the successful completion of the course, as well as the methods by which such accomplishments might be assessed, were defined by individual faculty members responsible for each course. Accomplishments were cross-referenced with NAAB student performance criteria. The plan was approved by the Curriculum Committee and sent to the Administrative Committee for review and consideration. The comments of the Administrative Committee were then incorporated into the assessment plan. (Appendix 7:5, Architecture assessment plan matrix.)

**Meetings between the Deans and Students**

The spirit of community is pervasive here, and students are very engaged in its support. The Dean and Associate Dean meet with each class at least once each semester and with student representatives at least once each semester. Issues of curriculum, individual courses and teaching, policy, facilities and procedures are all freely discussed at the initiation of either the students or the administration, and student concerns are recorded in meeting notes. The Associate Dean also has frequent meetings with student representatives. As necessary, student concerns are brought to the appropriate committee or directly to the faculty for consideration.
**Studio Environment**

The main shared studio of the School of Architecture on the third floor of the Foundation Building is considered the center of design interaction among students and faculty in the school. In the studios, students work together as a community of individuals, and this community spirit informs and permeates the entire school. With the first through fourth year students sharing a single large studio and the fifth-year thesis class in more intimate, individual spaces, a unique environment fostering cross-fertilization between classes and individual students is maintained. Students and faculty from all years interact easily and continuously, sharing knowledge and critiques—the upper year students serving as mentors and informal critics for the lower year students. The social and intellectual environment thus created is considered a vital part of the students’ experience at The Cooper Union.

**Design Studio**

Studios in the School of Architecture are team-taught, which allows every class of approximately 30 students to have three and sometimes four faculty members, both resident and adjunct, who collectively determine the program and requirements of the studio and guide and assess student work. A faculty representing both practice and research, both emergent and established, thereby reviews the work of each student. During the development of a project, students will receive at least bi-weekly desk critiques, a one-on-one conversation about the direction, progress and articulation of a student’s work. Informal (but required) “pin-ups” in a classroom are periodically held during the semester and give each student the opportunity to have his or her work reviewed in the context of the entire class. Students are also required to make mid-term and final presentations of their projects in a public setting to their faculty team and a wider group of invited critics from neighboring colleges and universities as well as from the profession. In this way, students receive almost constant review, guidance and assessment of their work in a manner that extends from the personal, over-the-desk conversation with faculty to the public presentation and review of work with the broader academic and professional community.

**Governance**

The governance of the School of Architecture establishes the means by which faculty and students engage in the evolution of policies and procedures in the school. The governance establishes four standing committees: the Administrative Committee, the Curriculum Committee, the Admissions Committee and the Committee on Academic Standards. All committees require representatives from both the full-time and Adjunct faculties as well as students and include various ex-officio members of the institutional administration and alumni. All voting members (including students) have an equal vote. Additional ad hoc committees may be established by the faculty to deal with matters not specifically assigned to the standing committees. These committees, standing and ad hoc, incorporate a responsibility for self-assessment within their areas of purview. Committees report directly
to the faculty via the faculty meeting. The governance requires that the faculty meets at least once each semester. Additional meetings may be called by the Dean in accordance with the provisions of the governance. The governance is held in very high regard by the faculty as a concise and effective social and legal document, providing a framework within which debate and change can be ordered, that provides for student representation at every level of the school's intellectual and social administration.

More than 90 percent of all students vote in their student government elections. Student Council representatives are elected by the students. Assignments of individual representatives to the faculty and committees are then determined within the Student Council.

**Faculty, Alumni and Student Surveys**
The School of Architecture periodically surveys the faculty, alumni and students for their assessment of the program's overall curriculum and learning context, as well as learning accomplishments, as outlined in the NAAB perspectives. The completed surveys are reviewed by the Dean and the Associate Dean, and concerns are brought to the appropriate faculty committee for consideration.

**Course Questionnaires**
The Curriculum Committee developed questionnaires for use in student assessment of individual courses. These questionnaires were used for the first time at the end of the Spring 2003 semester. The completed questionnaires are reviewed by the Dean and copies are made available to the individual faculty, as requested. The Dean then reviews the questionnaires with the individual faculty members. The Cooper Union Federation of College Teachers (CUFCT) does not permit full-time faculty to be required to participate in any evaluation procedure administered by the school or institution, although some full-time faculty members volunteered to participate in this new process. The Dean will consider the responses to the questionnaires as one of many issues in making teaching appointments and studio assignments.

**Art**

**Professional Accreditation**
Defining educational objectives for students and developing meaningful, evidence based measures for their progress towards those goals is the ongoing task of the Dean and the faculty committees as constituted in the governance. Student achievement is assessed via methodology recognized by our professional accrediting agency, National Association of Schools of Art and Design (NASAD), namely, group and individual critique and public presentation of student work. The ultimate assessment tool in a professional studio-based program is that the work speaks for itself.
In 1998, the reaccreditation of the School of Art by NASAD coincided with the Middle States review and visit. In anticipation of the scheduled 2008 visit by NASAD, the Dean and the faculty began the preliminary organization of the self-study process of the School of Art’s professional accreditation. The timing of the scheduled NASAD review would have occurred with some School of Art studios and classrooms relocated to a full floor in an industrial building in Long Island City to accommodate the construction of the new academic building. That floor was completely renovated and outfitted as art studio spaces for students. Dean Bos, citing these extenuating circumstances, and after consultation with the faculty and President, requested a postponement of the accreditation visit until Spring 2010, which NASAD subsequently approved. (Appendix 7:6, correspondence and NASAD response.)

The School of Art adopted a matrix for programmatic assessment following the guidelines of the institutional request for a strategic plan according to NASAD and Middle States expectations. (Appendix 7: 7, Art program assessment matrix.) After lengthy discussions and research, the Dean, working closely with the faculty, crafted a strategic plan for the School of Art, recasting the goals and objectives of the academic program to better reflect the critical, aesthetic and social framework of the contemporary art world. The strategic plan sustains the mission of the School of Art while fully engaging the innovative art practices implicit in developing technologies. The cornerstone of this process was the revision of the mission statement, ratified by a faculty vote and included in the School of Art’s strategic plan. (Appendix 7: 8, Art strategic plan portfolio.)

The integrated studio program in the School of Art includes a subset of discipline objectives requiring the curriculum to fulfill the general BFA objectives while authenticating the necessary prerequisite structure experiences within the distinct disciplines. After the last NASAD visit the school mapped its curricular components’ outcomes and assessment methods.

**Governance**

The governance of the School of Art, written by the faculty and approved by the Board of Trustees, establishes and defines the rights and responsibilities of the Faculty with regard to the educational mission of the School of Art. This document clearly delineates the structure for the implementation of these duties in the formation of the Administrative Committee, the Curriculum Committee, the Admissions Committee and the Academic Standards Committee. Full-time faculty, proportional faculty, Adjunct faculty representatives and students comprise the voting membership of each of these committees. The Dean of the School of Art chairs the Administrative Committee. The non-voting members of the committee structure include alumni representatives, representatives from the faculty of H&SS and the Deans of Admissions and Students. These internally and externally integrated committees, established to evaluate and advise on all matters pertinent to the School of Art, reflect the generalist curriculum in their diverse composition and reinforce the coherence and assessment of the integrated program goals.
Recruitment and Admissions
The work of student assessment begins before they even arrive at The Cooper Union. The review and recruitment of prospective students at National Portfolio days and The Cooper Union Open Houses rely on the participation of a committed group of faculty and alumni whose interaction with prospective students during recruitment helps produce an applicant pool unusual in its age, gender, class, and ethnicity profile. This initial early assessment ensures an outstanding and diverse student body and produces a low rate of attrition. Faculty and administration of the School of Art are strongly committed to maintaining a high level of quality among the student body. They are directly and extensively involved in recruitment and admissions, including individual follow-through with prospective applicants and portfolio review for students. This, coupled with National Portfolio Day events, delivers a highly-qualified and diverse applicant pool.

In order to attract high performing local students, in conformance with the mission of The Cooper Union (44 percent of the accepted class is from New York City and New York State), the strategy of the admissions process seeks to create a student community that reflects both local and national diversity (50 percent of admitted foundation students in 2007 were non-white). The School of Art continues to be the most selective undergraduate fine-arts program in the U.S., admitting 6 percent or less applicants each year. Applications over the most recent admissions cycles have recovered from a small decline after 9/11. In 2006, 1,150 first year applications and more than 200 transfer applications were received. The school admits 64 first-year students each year, as well as 5-10 transfer students.

The application to the School of Art requires a completed Home Test of six prompts for visual responses. That all the students are working on the same six problems gives the faculty and alumni reviewers a project basis to assess the applicant’s understanding and ability to think and communicate through visual language. Every Home Test is evaluated by a minimum of five individual reviewers. The final decisions are made collectively by a committee of faculty upon viewing their Home Test responses, reading the answers to the questionnaire and reviewing supplemental portfolio submissions. The transcript of every transfer student and student with advanced standing is reviewed by the Chair of Admissions, who forwards any credit to be awarded to the Dean for approval. (Appendix 7:9, sample home test for Art admission.)

A recent initiative has been the assessment of the language skills of admitted students by the Chair of School of Art Admission Committee in consultation with the Director of the Center for Writing and Language Arts. The objective of this review is to identify the language needs of the accepted students, to place them in the most appropriate core course and to initiate the support of the Center for Writing and Language Arts. All students have access to the Center for Writing and Language Arts, which assists students throughout all levels in their H&SS classes.
Many students from public or specialized high schools have had academically weak high school writing programs. Admissions to The Cooper Union is not about revenue generation but is focused solely on fulfilling the social and educational mission of Peter Cooper.

**Curriculum Assessment**

The School of Art Curriculum Committee, one of the four standing committees defined by governance, convenes to review existing and proposed courses in relation to the integrated BFA curriculum, the evolving professional environment and the need to address the demands of the 21st century. The committee includes four full-time faculty, one proportional-time faculty, one Adjunct representative (elected by the adjuncts), an elected student representative, the Dean, a librarian, a representative from the of H&SS, and an alumni representative.

The Curriculum Committee meets six to seven times a semester throughout the academic year to assess new course proposals, to define and redefine prerequisite structures, to determine the effectiveness of the courses, to develop new models and to consult with students, Adjunct faculty and members of faculty from across the institution on the efficacy of the program. The success of the curriculum and its constant development play an important role in the School of Art’s exceptional retention and graduation rates (both in the 90th percentile).

The addition of the graduation requirement for a senior presentation came directly from discussions within the Curriculum Committee, which voiced concern about a previous lack of a qualitative, summative assessment of the student’s performance beyond the quantitative fulfillment of credit-distribution requirements. The recently initiated Junior Seminar was also the result of these in depth evaluations by the faculty in response to the assessment of the senior presentations as a requirement.

The model of the Foundation Year remains a broad base for all areas of advanced study, but the nature of the individual components of the foundation curriculum are also under continuous review. A committee of the faculty has been identified to review the efficacy of the curriculum in the existing foundation program, its fundamental relationship to the advanced studio education as well as to the critical vocabularies and aesthetic theory that form the essential basis for the education of an artist.

**Discursive Sites**

The program is invigorated by shared sites of the studio and lab facilities offering continuous critique and instruction in giving students access to faculty and peer dialogue. The value of the shared site that engages both faculty and students is predicated on the notion that the spontaneous encounters amongst those who share aesthetic endeavors can generate invaluable insight created by working in close proximity to one another. The pedagogy of the School of Art resides in the resiliency and innovative energy of integrational fluency in all the resources of the visual arts.
**Exchange and Mobility Study**

There are currently one-semester student exchanges with schools in Sweden, England, France, Germany, Switzerland, The Netherlands, Spain, the Czech Republic, Israel and Japan. The mobility program includes schools that are members of the Association of Independent Colleges of Art and Design.

The academic records and the eligibility of students applying for off-campus study are reviewed by the Director of Off Campus programs before application to off-campus study opportunities. Students are required to submit an artists statement and portfolio for evaluation first by Cooper Union faculty and then by the host institution. Upon return to The Cooper Union, students are required to present their work to the recommending faculty for assessment in order to receive credit.

The exchange and mobility program reflects the School of Art’s commitment to globally-literate artistic practice. On average, 12 mobility and international exchange students study at the school each semester. Participation in the foreign exchange program offers Cooper Union students the opportunity to study with artists internationally and engage in an expanded discourse of instruction and theory. (Appendix 7:10, list of mobility places, 2007–2008.)

**Assessment through Presentation and Exhibition of Student Work**

The most public and most visible form of student learning outcomes assessment in the School of Art is the senior presentation. Students may satisfy this requirement with a solo or group exhibition or, where appropriate, a screening, performance or publication. Criteria for senior shows are an ongoing discussion in the Curriculum Committee as members debate questions of professional practice, appropriate faculty evaluation, mentoring, expanded contexts of presentation and location. The committee continues to review these critical and ever-evolving curricular issues surrounding the graduation requirement.

In addition to the senior presentation, the work of the entire program is made visible through the Annual Student Exhibition. The Annual Student Exhibition opens in the Houghton Gallery and throughout the Foundation Building the night before graduation. The exhibition features the work completed in the studio classes of the students in the School of Art. The faculty, with the assistance of students, curates and installs featured works from the previous academic year, publicly exhibiting a diverse range of ideas and media, in drawing, film, graphic design, installation, painting, photography, printmaking, sculpture, video and book arts from all levels of study. The opening night reception is followed by additional events for donors, New York City school guidance counselors and alumni at which the Dean speaks, presenting the School of Art, its students, its academic program and social vision.
**Engineering**

The Engineering Accreditation Commission (EAC) of ABET evaluated the chemical, civil, electrical and mechanical engineering programs of the School of Engineering in 2007. (Appendix 7: 11, ABET self-study volume one; appendix 7:12, ABET volume two; appendix 7:13, response to ABET’s exit report, March 2007) The process included a review of mathematics, physics, chemistry, biology, the Computer Center, the Career Center, the CONNECT program, Admissions and Records and Business Affairs. All were deemed to be “very supportive” of the engineering programs.

The ABET team cited the engineering school programs as “well recognized for [their] quality,” and praised the process in place for the “systematic curricular review and revision, incorporation of project-based learning across the curriculum, and international undergraduate research.”

The report also cited “student excellence and collegiality [as] readily apparent,” with access for all to “state of the art facilities,” used by students who have been given “strong design, simulation and experimental learning opportunities.” The low faculty-to-student ratio and physical proximity between students and faculty “promotes ready access and strong relationships for optimal learning in a rich cultural environment.” (Emphasis in original.)

It was noted that the students are “bright and articulate, and well prepared to practice engineering. Historically over 80 percent of graduates [complete] advanced degrees.” Further the report commented that “the faculty [are] a clear strength” and “the curriculum provides students with a strong theoretical and analytical background. The integration of design throughout the curriculum, with major design activities in each year, is excellent. Furthermore, students appreciate the recently developed technical electives in exciting and modern subjects and cite them as a strength.”

All programs were reaccredited, with a minor report being required from civil engineering clarifying a terminological semantic difference between the language that ABET uses and that used in the civil engineering ABET self-study volume. (Appendix 7: 14, ABET report.)

**Student Learning Outcomes Assessment in Engineering**

The School of Engineering has to satisfy ABET (a)-(k) criteria. They are comprehensive, require our programs to be assessed (continuously), employ a variety of measures at every level and proof of “closing the loop.”
To obtain ABET accreditation, engineering programs must demonstrate that their graduates have:

• An ability to apply knowledge of mathematics, science and engineering.
• An ability to design and conduct experiments, as well as to analyze and interpret data.
• An ability to design a system, component, or process to meet desired needs.
• Ability to function on multi-disciplinary teams.
• An ability to identify, formulate and solve engineering problems.
• An understanding of professional and ethical responsibility.
• An ability to communicate effectively.
• The broad education necessary to understand the impact of engineering solutions in a global and societal context.
• A recognition of the need for, and ability to engage in lifelong learning.
• A knowledge of contemporary issues.
• An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

Each program must have an assessment process with documented results. Evidence must be given that the results are applied to the further development and improvement of the program. The assessment process must demonstrate that the outcomes important to the mission of the institution and the objectives of the program, including those listed above, are being measured. (See page 40 of the ABET accreditation self-study volume I.)

The ABET accreditation visit found that our assessment processes were in place and operative, and have resulted in very major changes in the curricula. Two examples of this are 1) the establishment of three different tracks through electrical engineering and 2) the development, under a grant from the National Science Foundation and its subsequent registration with the State of New York, of the new interdisciplinary engineering program. This program had insufficient graduates to permit ABET accreditation during this cycle, and it is currently under faculty review.

(The material for the remainder of this section concerning the School of Engineering was derived from the ABET self-study, volume one.)

The outcomes assessment program at The Cooper Union began in the School of Engineering in 1997. Since then, it has been implemented throughout the college, and is making a significant contribution to the quality of academic programs in all schools.
To the extent possible, the engineering faculty members strive to assure that our assessment program embodies the following characteristics:

- Aligned with the institution’s mission.
- Has faculty ownership and responsibility.
- Supported institution-wide.
- Based on clear and measurable outcomes.
- Uses multiple measures.
- Provides useful feedback to all parties.
- Leads to improvement.

The development of the assessment process has enhanced interaction between faculty and students at The Cooper Union. It has also helped to focus attention on the benefits of a competency-based, learner-centered education. The process has also sensitized the faculty about the effectiveness of their teaching in meeting the desired educational objectives.

The Gateway Coalition, begun in 1992, was a visionary program for the reform of engineering education. Financed by the National Science Foundation, The Cooper Union and six other schools formed a partnership to develop new courses and carry out joint projects. One of the primary directives driving this initiative was to develop assessment metrics.

This coalition established the initial impetus and provided continued support for an assessment process that, at The Cooper Union, developed gradually in several steps:

- Assessment of Gateway projects.
- Assessment of Gateway courses.
- Extension of assessment to other courses and programs outside of Gateway but within the School of Engineering.
- Preparation and implementation of departmental assessment plans.
- Preparation and implementation of school-wide assessment plans.

Each assessment project included a form for documentation of feedback activities. The archived documentation answered the following questions:

- Who has read the assessment results? To whom have they been disseminated?
- What comments have been made about the assessment process and results and by whom?
- What is the analysis of results by the course instructor, project investigator or program director?
- What suggestions for change can reasonably be made in view of the assessment results?
A specific link should be made between assessment results and specific planned or implemented actions for improvement. This is a framework for assessment feedback, which is an organized, formal and periodic reflection on assessment results leading to the implementation of actions for improvement. Such a reflection is essential for assessment effectiveness. If results will not be discussed with the relevant constituencies, assessment is not meaningful and should not be undertaken. The more discussion and reflection generated, the better equipped we are to refine our programs and effect continuous quality improvement.

At the beginning of efforts to develop the best assessment program possible, the school identified six factors believed to qualify an assessment activity as a best practice worthy of offering as a model to others. All the projects presented below have these six features in common:

- The objectives and expected outcomes of the practice are well defined in advance.
- The methodologies used are appropriate to the task at hand.
- The implementation of the process for data gathering and analysis is complete in all its phases.
- All constituents—all those affected by the project, program or course—are included in the process.
- The results are disseminated and there is a feedback process in which the data gathered are reviewed and discussed by the constituents.
- The practice generates changes in the area of its application.

School-wide Assessment Procedures
(Archived and web-accessible documentation http://doc1.cooper.edu:8080/gateway/cooper_site/index.html see also section 2.2 in the Institutional Research portion of the Middle States electronic resource)

In addition to the course assessment methods implemented by instructors, the School of Engineering The Cooper Union systematically makes use of a variety of assessment procedures for program improvement. These procedures are consistent with the school’s mission and the program objectives and are as follows:

- A yearly Senior Survey, which is administered by the Office of Student Services each spring and analyzed by the Office of Assessment and Innovation. The results of this survey give a comprehensive picture of student opinions about a wide variety of issues related to the school. In addition, the survey includes questions about the program objectives as stated in the assessment plan document.
A yearly Freshman Survey, administered by the Office of Student Services each fall and analyzed by the Office of Assessment and Innovation. This survey gives a clear idea of the freshmen's academic expectations upon arrival at the school.

An Alumni Survey, which includes questions about the academic program and alumni satisfaction with their education at the school. (The last Alumni Survey was conducted in 2005; we obtained 1,600 responses from our alumni for a response rate of 40 percent.)

Specific course assessments, which cover issues specific to the course at hand, as well as questions on accomplishments related to program objectives. A number of representative courses are selected each semester for assessment.

Documentation of informal feedback, such as discussions during project presentations and faculty advising.

Documentation of Student Council meetings with the Deans and general student meetings with the Dean and Associate Dean each semester.

Academic Standards Committee. Performance of students is carefully monitored by this committee. Students are individually discussed and interviewed. Students come before the committee when their G.P.A.’s are below 2.0. A G.P.A of between 1.7 and 2.0 makes a student a candidate for probation, during which their progress is very closely monitored. A G.P.A below 1.7 renders the student liable for possible dismissal, although such action is usually temporary, and remediation allows the student to return.

Curriculum Committee. Curricular change and new courses are presented for approval at this committee. The committee discusses the impact of the changes and ensures that the mission and educational objectives are met.

Recent Additions to the assessment program. The faculty, students and alumni periodically reassess and reevaluate the validity of the programs’ objectives, and if necessary, adjust and renew them. The following activities are now institutionalized:

Alumni Gatherings
Every other year, starting in February 2007, Cooper Union engineering alumni gather in the school to discuss strategic directions in curricula and research that affect the development of academic offerings at The Cooper Union. After the intense discussions, results are collected by using a questionnaire and analyzed for use in the loop-closing and continuous quality improvement procedures at the school.

Faculty Working Groups
Every semester, starting in the Fall of 2006, each department meets to discuss assessment results and take action on issues concerning academic life and, generally, the development of instruction and research at the department level. Results are documented and used for loop-closing.
Major changes in the School of Engineering, 2000-2006 Due to Assessment Results
A combination of quantitative and qualitative, formal and informal, explicit and tactic assessments has led to several major changes in the Albert Nerken School of Engineering during the past six years. A summary of the changes follows:

• More emphasis on project-based learning, an objective of the faculty
  • Bringing the pedagogy of projects down to freshman year.
  • Teamwork.
  • Emphasis on real-life constraints (economic societal, environmental, safety) in engineering projects.
  • Greater emphasis on oral presentations to an audience.
  • Communication skills—maintain a greater emphasis.
  • This is achieved by regular review of individual courses and the integration of projects into required and elective courses, where appropriate.

• Expansion of the study-abroad experiences. Increasingly, students are taking the opportunities available in the School of Engineering to study abroad. The summer abroad program calls for a six-week long research project to be carried out at a foreign university, followed by travel and cultural experiences. Both parts of the experience are documented in a report. Students who are motivated by this opportunity often wish to study the language of the country or countries that they will visit. Within the next few years, provided that resources are available, the School of Engineering would like to emphasize the global nature of engineering and encourage all students to experience learning in different cultures. GLOBTECH is a course in which students perform engineering design in partnership with universities abroad. They do this using electronic communications and video conferencing. This program is a stepping stone towards the goal of including all students in an integrated experience with other cultures.

• More emphasis on business and entrepreneurship. Student surveys showed the need for more courses dealing with business and management of technology. They were developed and are now being offered.

• Greater curricular flexibility in all of the ABET-accredited programs. Faculty and students communicated some unhappiness concerning the lack of flexibility in the programs. Recent curricular revisions have provided additional elective freedoms and even separate tracks within individual programs. Civil, chemical, mechanical and electrical engineering have all increased their elective freedoms. This was done in response to our constituencies’ inputs. For example, there are now three distinct tracks through the Electrical Engineering program.
• Development of additional technical electives in all areas. New and emerging technology is being integrated into curricula by existing faculty members and also by new hires who have expertise in emerging areas of study.

• Development of new program in interdisciplinary engineering (not yet submitted for ABET accreditation) The interdisciplinary engineering program was developed in response to student, alumni and advisory board input. The National Science Foundation awarded the school a large grant to develop the structure of a new program in interdisciplinary engineering, and 85 percent of the faculty participated in the program development. The first graduates were in 2007.

• Expansion of alumni interactions with students. The alumni organize and conduct many activities for current students, including career nights, mock interview nights, networking and resume writing.

• Expansion of humanities electives. See pages 90–99 of the ABET self-study, volume one.

Challenges over the Next Five Years
The following are challenges to the School of Engineering, as presented to the ABET accreditation team:

• The school must maintain the excellence of the academic programs by continuing to attract and retain top-notch faculty and well qualified, talented and motivated students.

• The school will continuously assess and improve curricula through assessment and consultation with our constituents.

• The school will follow our practice of giving our students a rigorous background in fundamentals and project-based experiences in current technologies, complemented by an emphasis on “soft skills” such as presentation skills, public speaking and negotiation skills.

• Professional development of students should include both industrial and research internships and an international experience.

• The School will examine and improve its graduate programs, and investigate certificate programs, aimed at promoting life-long learning.

• Research will be focused in the new centers, for which the school will seek endowment and project funding. (A new director of research is being hired.)

• There needs to be increased investment in creating and maintaining state-of-the-art labs and information technology. Establishing a division of academic computing is a priority.
Available in the Document Room to the Middle States team at the time of the visit will be 52 engineering assessment reports, including:

- 2005 Alumni Survey.
- The Cooper Union assessment papers 2002.
- Benchmarking of strategic indicators for the School of Engineering.
- Department questionnaire results 2005.

INSTITUTION-WIDE MEASUREMENTS OF STUDENT LEARNING

Learning outcomes assessment at The Cooper Union has the following characteristics:

- Faculty determine the desired learning outcomes for students in their school, program, or major—that is, assessment is specific to the discipline and the underlying pedagogy.
- Faculty devise and implement the assessment methodologies that are most appropriate for their stated outcomes and most instrumental for program improvement.
- In keeping with Middle States standard 7, learning assessment at The Cooper Union is collaborative. Faculty and administrative staff work together to design and carry out assessment activities.
- In keeping with Middle States standard 11, learning assessment at The Cooper Union is broadly-defined. It seeks to measure the totality of students’ learning experiences—their development of foundational skills, their mastery of advanced knowledge, their cultivation of civic and professional experience and their integration of skills, knowledge and experience into a coherent whole.
- In keeping with Middle States standard 14, learning assessment at The Cooper Union is student-centered. It is built upon understanding and respect for the specific educational needs, challenges and aspirations of The Cooper Union’s distinctive student populations.
- Also, in keeping with Middle States standard 14, learning assessment at The Cooper Union is results-oriented. Its purpose is to illuminate both achievements and problems in ways that help the college improve teaching and learning.
Learning assessment at The Cooper Union measures student progress from matriculation to graduation. Entrance assessments, conducted as students begin at The Cooper Union, provide baseline data for evaluating their initial knowledge and skills. As students progress through their programs of study, the college collects additional data. For example, surveys are used to assess the impact of the first-year experience on students’ academic foundations and level of engagement. The Cooper Union also measures achievement of student-learning goals through course-embedded assessments, academic program reviews and qualitative analysis. As students complete their education, the institution employs a variety of measures to assess summative learning. For instance, major programs evaluate student learning outcomes through their capstone courses, senior seminars, comprehensive examinations, theses and senior presentations. Table 30 below sets forth the assessment methods of The Cooper Union.

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<td>• Institutional Benchmarking (AITU Data)</td>
</tr>
<tr>
<td>• Alumni Survey (factual questions)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADVISORY COUNCIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Alumni Survey</td>
</tr>
<tr>
<td>• Study-Abroad Program</td>
</tr>
<tr>
<td>• Recruiters Feedback</td>
</tr>
<tr>
<td>• Advisory Council Feedback</td>
</tr>
<tr>
<td>• Personal faculty interactions with Alumni &amp; Employers</td>
</tr>
</tbody>
</table>
Institution-Wide Assessment Studies
The following are the major assessment studies conducted institution-wide:

- **2005 Alumni Survey.** Overall, Comparisons, Engineering Departments, Art, Architecture.
- **Alumni Survey Overall by Ethnicity.** Aggregated data for the institution as a whole, analyzed by ethnic group of respondents.
- **Alumni Survey Overall by Gender.** Aggregated data for the institution as a whole, analyzed by gender of respondents.
- **Entry Surveys, 1998-2006.** Overall, Comparisons, Engineering Departments, Architecture, Art.
- **Exit Surveys, 2000-6.** Overall, Comparisons, Engineering Departments, Architecture, Art.
- **Student and Alumni Opinions about The Cooper Union Faculty.** A selection of student and alumni responses from Exit and Alumni surveys.
- **Data, Information, Knowledge at The Cooper Union (10/06 Draft).** Process and system institution-wide.
- **Association of Independent Technological Universities (AITU) Data Exchange, 2000-6.** Selection of strategic indicators.
- **Strengths and Weaknesses Report.** A Summary of trends from our 2000-6 Exit Surveys and our 2005 Alumni Survey.
- **2007 Exit Survey.** Results from a survey conducted in Spring 2007.

Table 31, on the following page, provides examples of assessment and evaluation at The Cooper Union:
### Table 31

**Examples of Assessment and Evaluation at The Cooper Union**

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Evaluation Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locally Developed Exams</td>
<td>Instructors rating</td>
</tr>
<tr>
<td>Portfolios</td>
<td>Faculty group discussion</td>
</tr>
<tr>
<td>Oral Presentations</td>
<td>Instructors rating, external rating</td>
</tr>
<tr>
<td>Performance Appraisals</td>
<td>Faculty discussion of project findings</td>
</tr>
<tr>
<td>Case Studies</td>
<td>Faculty discussion of project findings</td>
</tr>
<tr>
<td>External Examiners</td>
<td>Faculty discussion of analyzed data</td>
</tr>
<tr>
<td>Institutional Benchmarking</td>
<td>Deans and faculty discussion of trends</td>
</tr>
<tr>
<td>Exit Surveys</td>
<td>Deans and Dept. Chairs’ discussion of trends</td>
</tr>
<tr>
<td>Course Questionnaires</td>
<td>Individual instructor evaluation, Department Chair discussion of trends and possible causes of concern</td>
</tr>
<tr>
<td>Archival Data</td>
<td>Deans, Chairs and faculty discussion of trends and possible causes of concern</td>
</tr>
<tr>
<td>Alumni Survey</td>
<td>Faculty discussion of main trends in the data and possible causes of concern</td>
</tr>
<tr>
<td>Study Abroad Program</td>
<td>Deans, Chairs and faculty review of the analyzed data</td>
</tr>
<tr>
<td>Recruiters Feedback</td>
<td>Deans, Chairs and faculty discussion of the analyzed data</td>
</tr>
<tr>
<td>Advisory Council</td>
<td>Dean, Associate Dean and Department Chairs discuss mission and educational objectives with members of the engineering Advisory Council and incorporate their recommendations</td>
</tr>
<tr>
<td>Personal Feedback from Employers</td>
<td>Departments and Deans discuss feedback on mission and educational objectives</td>
</tr>
</tbody>
</table>
**Career data**

*Recruiter Feedback Survey (see section 2.2.8 of the Institutional Research portion of the Middle States electronic resource)*

The Career Center conducts a Recruiter Feedback Survey, issued to every on-campus recruiter in the Fall semester. Using the survey data, the Career Center developed specific programs to address characteristics where students were least proficient: “articulate in describing his/her career goals” and “used effective non-verbal communication skills.”

In response to the measure regarding the articulation of career goals, the Career Center introduced self-assessment as a means of carving out a professional path that is best aligned with students' interests, skills, and values. The center now offers the Strong Interest Inventory Assessments to students at no charge, an online downloadable self-assessment worksheet, and the self-assessment topic is more deliberately infused into job search workshops and individual counseling sessions.

In response to the measure regarding the use of nonverbal communication skills, the Career Center now offers taped mock interviews to allow students to examine and reflect upon their nonverbal communication messages. We discuss such areas as eye contact, posture, facial expression and the use of hand motions.

In addition to being used to develop stronger programming in the Career Center, the Recruiter Feedback Survey statistics are forwarded to the Center for Institutional Research and head of the Professional Development Seminar for further analysis.

**Placement Survey**

The Career Center systematically gathers graduating student placement information on a yearly basis, covering such areas as whether the student has accepted a position or will go on to graduate school, as well as job title and salary data, fellowships received, and Career Center feedback. The center looks at trends, including what professional path students are taking upon graduation and how their salaries relate to that of previous years and to those of graduates from other institutions.

In response to the large number of engineering students who enter graduate school upon graduation from The Cooper Union and the feedback asking for more graduate school application support (both according to the graduating student survey), the Career Center developed a more expansive and deliberate graduate school focus and held panels discussions covering engineering graduate school, law school, medical school and business school. In addition, the center offered a panel discussion on art graduate school.
New trends have fueled increased emphasis on graduate school preparation. For example, historically, engineering students have been the most likely candidates for business school and, in the past, few went directly for an MBA degree (only one student in 2005). Most business schools then sought candidates with about three to four years’ of work experience. Now, a new trend of accepting students with less work experience has led to more aggressive recruiting. Furthermore, art graduate school programs are beginning to encourage students to wait at least two years after they have completed their undergraduate degree before applying; they seek students with more life experience to bring to their practice. Thus, surveys show a decline in students pursuing art graduate school immediately upon graduation. In response, the Career Center has made a deliberate gesture not only to invite current students, but also to invite recent alumni to attend art graduate school panels, because they are increasingly the most likely applicants to the various programs. These two examples of the shifting terrain of graduate school are part of the reason that the Career Center is placing a renewed emphasis on educating students about graduate school options.

In evaluating student earnings, it is clear that salaries are on the rise for engineers. Engineering graduates of 2007 earned 11 percent more than those students graduating in 2006 ($59,320 vs. $53,000). In addition, compared to what top employers are offering, recent engineering graduates, according to the National Association of Colleges and Employers (NACE), our students are earning 13 percent more ($59,320 vs. $51,875).

The engineering student response rate to the placement survey is 90.2 percent, itself a good reflection of student engagement. In its Career Services Benchmark Survey, NACE reported an average response rate of 62.9 percent among the participating schools (2005).

The architecture student response rate to the placement survey is 70 percent, well above the average reported by NACE. It should be noted that only three students had secured employment upon graduation. Because architecture students are well prepared to enter the professional upon graduation and have many employment opportunities available to them both through the School of Architecture and the Career Center, those who were still seeking employment appear to be making a choice.

The art student response rate to the placement survey is 40 percent, well below the average reported by NACE. This is understandable given the different career paths of artists. However, it exceeds the average response rate of a sampling of member colleges of the Association of Independent Colleges of Art and Design, which is 35 percent. While the survey instrument is given to each student in hardcopy and electronic formats and is systematically requested in an ongoing procedure, the response rate for art students could be improved. The Career Center has stated that completion of the survey is a requirement for graduation and expressed the importance of the data in our effectiveness and programming.
More significant than the percentage of responses is the content. As for architecture students, it is somewhat typical of art students to delay full-time employment (and/or to seek part-time employment only). Those students who do report their placement information often have circumstances that do not always fit neatly into surveys because of their having more than one job or other, more complex employment arrangements. It should be noted that graduating art student have reported participating in a significant number of exhibitions beyond the single exhibition requirement for graduation. Further, some have art students have organized group exhibitions.

The School of Art’s clearly articulated generalist philosophy of its academic program allows students flexibility to pursue many career directions. This flexibility can lead to unpredictable career paths. The School of Art offers a course titled Professional Practices (FA 322) that specifically addresses portfolio presentation and professional ethics, among an array of professional considerations, in the context of working on supervised design projects for not-for-profit organizations. Art students’ career development is supplemented by the Professional Internship Program and CU @ Lunch with Alumni; the latter is a series of alumni presentations that address successful ways of making the transition from study to professional practice and that exposes students to a variety of career paths. (Appendix 7: 15, Art and Architecture student placement spreadsheet.)

Table 32 below is the profile of the engineering class of 2007 from a Career Center placement survey.

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Total</th>
<th>Graduate Engineering</th>
<th>Law</th>
<th>Med</th>
<th>Work</th>
<th>Still Seeking</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Eng.</td>
<td>17</td>
<td>8 (three to Cooper)</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Civil Eng.</td>
<td>21</td>
<td>8* (one to Cooper)</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Electrical Eng.</td>
<td>29</td>
<td>6** (three to Cooper)</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mechanical Eng.</td>
<td>23</td>
<td>10 (two to Cooper)</td>
<td>1</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>BSE/BE</td>
<td>22</td>
<td>8 (one to Cooper)</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>112</td>
<td>40 (ten to Cooper)</td>
<td>2</td>
<td>3</td>
<td>47</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

* Fulbright, Panama  ** Fulbright, Sweden

Note: A list of graduate schools attended by members of the Class of 2007 and a list of companies known to have recruited the most recent graduates may be found in the Document Room.
Communication Skills—CONNECT

CONNECT is a series of workshops for undergraduate engineers of The Cooper Union designed to address communication issues and skills that traditional engineering curricula do not. Engineers concentrate on the details that ensure their work is precise, efficient, practical, etc.; they are persuaded by technical arguments that address these criteria while others may not be. CONNECT strives to teach the soft skills involved with communicating with an audience by utilizing the talents of working performance artists as well as engineering faculty.

Assessment of CONNECT and the integration of the assessment outcomes has evolved over the years since its introduction into the engineering program in 1997. Formally, students in the program are given surveys both before and after the workshops to grade the students understanding of the material and their perception of the program's effectiveness. Informally, students, faculty and alumni often personally communicate their opinions on the importance and effectiveness of the program directly to the facilitators. Companies also communicate the talents of The Cooper Union engineering graduates, their abilities to communicate effectively and areas that need improvement. In a survey conducted in 1999-2000, job recruiters who interviewed graduating seniors rated CONNECT participants more highly than nonparticipants in several behavioral categories. The CONNECT program is still evolving, but it has already had a well documented positive influence on the communication effectiveness of Cooper Unions engineers.

External Assessments

Not to be ignored are some of the external “assessments” of the success and value of a Cooper Union education. With approximately 1,000 students, The Cooper Union wins a vastly disproportionate share of the nation's most prestigious awards. A selection of these follows. For a detailed listing of student and alumni awards and accomplishments, see the archived President’s online newsletters and awards.

Student Awards and Prizes

Cooper Union students and have received an astonishing number of Fulbright Scholarships for a college of our size. In the period 2001-2007, 23 students and 2 faculty members have been awarded Fulbrights. (Appendix 7:16, Fulbright Awards.) The Fulbright Commission agent (IIE) ranks The Cooper Union as the foremost specialized school in terms of number of awards and number of finalists.

In 2007, Cooper Union was among the top three institutions whose graduates won National Science Foundation graduate fellowship awards in chemical engineering, civil engineering, electrical engineering and mechanical engineering. Cooper Union students were awarded five fellowships, behind only MIT and UC Berkeley. A Cooper Union graduate won the Tau Beta Pi Fellowship in both 2005 and 2006; the engineering honor society makes this annual award to only 35 engineering graduates nationwide.
Cooper Union undergraduate and graduate engineers are traditionally the top prize-winners in engineering professional societies. The annual competitions held by the Institute of Electrical and Electronics Engineers (IEEE) for electrical engineering students, for example, were dominated by Cooper Union students. In 2007, first prize in the IEEE undergraduate competition went to four Cooper Union students for their work on “SLIMA: Source Location and Isolation with a Microphone Array,” Prof. Carl Sable, Advisor. First Prize in the graduate category went to Ishaan Dalal for “A Reconfigurable Real-Time Image Reconstruction Engine for Parallel MRI,” Prof. Fred L. Fontaine, Advisor. The IEEE also awarded the third prize for undergraduate work to Vicky Lay and Javier Rodriguez for the “Cooper MicroMouse,” Prof. Toby Cumberbatch, Advisor.

Almost half of Cooper Union graduates enter the nation’s top graduate programs, many with prestigious fellowships such as those listed below in 2007:

- AAAS Congressional Fellow
- Alex Katz Fellow
- Dean’s Fellow, Quinnipiac University
- Aerospace Engineering Fellow, Columbia University
- Electrical Engineering Department Fellow, Princeton University
- Biomedical Fellow, University of Texas, San Antonio
- Electrical Engineering Fellow, Penn State
- Mechanical Engineering Fellow, University of Texas, Austin
- Illinois Distinguished Fellow, University of Illinois
- Medical Sciences Training Fellow, SUNY Stonybrook
- Carnegie Mellon University Scholarship for Service
- Mechanical Engineering Fellow, UC Irvine
- Presidential Fellow, Georgia Tech

External Media Coverage
Over the past several years The Cooper Union has intensified efforts to demonstrate the excellence and value of the teaching and learning that takes place in its professional and humanistic studies: architecture students imagine the redevelopment of Governors Island, *New York Times*; School of Art students’ work in the 2005 End of Year Show, *New York Times*; a Cooper Union graduate who went through the high school Saturday Outreach program, *New York Daily News*; summer engineering high school interns, NY1 TV. Other examples are in the Document Room.
Alumni Recognition, Awards, Prizes

With such legendary alumni role models as inventor Thomas Alva Edison; sculptors Augustus Saint-Gaudens and Augusta Savage; graphic designer Milton Glaser; and architects Irwin S. Chanin and John Hejduk, Cooper Union graduates continue to leave an extraordinary footprint on the cultural and scientific landscape. Recent Awards include:

- 12 Rome Prizes.
- 18 Guggenheim Fellowships.
- 3 MacArthur Fellowships.
- 1 Nobel Prize, Physics.
- 9 Chrysler Design Awards.
- 3 Thomas Jefferson Awards for Public Architecture.
- Gordon Prize in Engineering.

A number of alumni hold leadership positions including Stan Allen, Dean of Architecture, Princeton; Albert Carnesale, Chancellor Emeritus, UCLA; Toshiko Mori, head of Architecture, Harvard; Peggy Deamer, University of Auckland School of Architecture; Kevin Burke, CEO, Con Edison Inc.; Stan Lapidus, CEO, Helicos Biosciences, Inc.

On the assumption that the professional education degrees in architecture, art and engineering lead to careers and accomplishments, The Cooper Union has several avenues by which to follow, recognize and award special prizes to its alumni.

“At Cooper Union”: This magazine is targeted mainly to alumni, but is also mailed three times a year (with the second issue focusing on donor recognition, especially among alumni classes and societies) to donors, potential donors, the civic and government communities, foundations and parents of Cooper Union students.

Since Spring 1999, 23 issues have focused on the careers and accomplishments of 120-plus graduates of The Cooper Union. There are in-depth features (2-3 pages), Pioneer Profiles (1-2 pages) and Project Pages (1), which highlight the work of each professional. Features have run the gamut from highlighting John Q. Hejduk, AR’50, founding Dean of the Irwin S. Chanin School of Architecture to Daniel Libeskind, AR ’70, Diane Lewis, AR’76 and more recent graduates—five architecture alumni from the class of ’05 who designed the memorial to Flight 587 in Queens and Harry Gaveras, AR’93, who, with Chi Fan Won, AR’92, designed high-rise residential buildings in China.

From the mid-1950’s to the present, at each commencement, the President of The Cooper Union presents special citations to alumni in engineering, architecture and art for their lifetime achievements and contributions to society. In the main, these are presented to
alumni selected by a special panel. This is the highest honor the college bestows upon its alumni and, in a few cases, to non-alumni. (Appendix 7:17, presidential awards and alumni association awards.)

The Cooper Union Alumni Association each year selects outstanding alumni—usually one in each category and occasionally two—in several categories. They are presented with named awards at the annual Founder’s Day event. This is the highest honor bestowed by the Alumni Association. The awards include the Gano Dunn Award in engineering, the Augustus St. Gaudens Award in art, the John Hejduk Award in architecture, Alumnus/a of the Year Award and the Young Alumni Award.

Table 33 below with results from the 2005 Alumni Survey shows that Cooper Union alumni acknowledge that the education they received here has contributed to their professional success. Around 70 percent of all surveyed alumni agree that The Cooper Union education contributed “to a great extent” or “to a very great extent” to their professional accomplishments in answer to the question: To what extent did your Cooper Union education contribute to your professional success?

Table 33
2005 Alumni Survey Responses: “To what extent did your Cooper Union education contribute to your professional success?”

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1659</td>
<td>173</td>
<td>340</td>
<td>245</td>
<td>285</td>
<td>225</td>
<td>157</td>
</tr>
<tr>
<td>Not at all</td>
<td>22</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>To a limited extent</td>
<td>128</td>
<td>9</td>
<td>32</td>
<td>22</td>
<td>20</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>8%</td>
<td>5%</td>
<td>10%</td>
<td>9%</td>
<td>7%</td>
<td>7%</td>
<td>8%</td>
</tr>
<tr>
<td>To a moderate extent</td>
<td>354</td>
<td>33</td>
<td>72</td>
<td>49</td>
<td>68</td>
<td>59</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>22%</td>
<td>19%</td>
<td>21%</td>
<td>20%</td>
<td>24%</td>
<td>26%</td>
<td>28%</td>
</tr>
<tr>
<td>To a great extent</td>
<td>669</td>
<td>72</td>
<td>112</td>
<td>117</td>
<td>123</td>
<td>87</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>41%</td>
<td>42%</td>
<td>33%</td>
<td>49%</td>
<td>43%</td>
<td>39%</td>
<td>38%</td>
</tr>
<tr>
<td>To a very great extent</td>
<td>457</td>
<td>58</td>
<td>114</td>
<td>52</td>
<td>69</td>
<td>61</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>28%</td>
<td>34%</td>
<td>34%</td>
<td>22%</td>
<td>24%</td>
<td>27%</td>
<td>22%</td>
</tr>
<tr>
<td>No Response</td>
<td>29</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>
Indirect Measures: Exit Survey Data (see section 2.1.4 of the Institutional Research portion of the Middle States electronic resource)

The statements of student learning outcomes (SLOs) in both the Exit and Alumni surveys were derived from the stated program SLOs and the expectations of the professional accreditation agencies. Ratings for the competency section of the survey are highly positive. Mean ratings across all years range from 3.29 to 4.06, indicating that exiting students believe that the school has contributed to all of the competencies to at least a “moderate extent,” although well over half of the measures have mean ratings better than or equal to 3.8. Furthermore, the majority of competency measures have very low standard deviations for mean ratings and combined percentages, indicating that the positive results apply fairly across the board. This is different from the higher standard deviations in the institutional provisions section of the survey, as is the substantially lower number of “N/A” responses, which are akin to “no opinion” in the previous section.

Exiting students expressed the most confidence in the school’s contribution to their ability to think creatively, which received a mean rating of 4.06 across all years, remarkable combined-ratings percentages of 74.95 percent for the two highest ratings and 95.19 percent for the three highest. More than a third of all students (35.21 percent) selected the highest rating for this measure, indicating that their education had contributed to “an ability to think creatively” to a “very great extent.” The high level of these ratings is a result mainly of the responses of students in the art and architecture programs, for which ratings averaged 4.06 and 4.57 respectively.

“The ability to work effectively in a team” was the measure receiving the highest ratings from students in the engineering program (4.08), but the institutional average on this measure was reduced significantly by responses from students in the art program. The resulting average was a 3.92.

Beyond creative thinking and teamwork, students consistently indicated substantial improvements in their abilities to handle information resources (3.98), present findings to an audience (3.87), talk and write with others (3.82), lead and manage projects (3.81) and maintain a life-long disposition for learning (3.95).

Performance

Results in the competency section of the survey are highly favorable as shown in Table 34 below. Eight of the 12 measures received ratings that surpassed 50 percent for the top two ratings percentages and 90 percent for the top three.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean Rating</th>
<th>% Top 2 Ratings</th>
<th>% Top 3 Ratings</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ability to think creatively and try different solutions to questions and problems in your professional field</td>
<td>4.06</td>
<td>74.95% *</td>
<td>95.19% *</td>
<td>0.01</td>
</tr>
<tr>
<td>The ability to effectively handle information resources, to collect and interpret data</td>
<td>3.98</td>
<td>72.91% *</td>
<td>94.59% *</td>
<td>0.04</td>
</tr>
<tr>
<td>An awareness of, and disposition for, life-long learning in your professional careers</td>
<td>3.95</td>
<td>69.44% *</td>
<td>90.53% *</td>
<td>0.09</td>
</tr>
<tr>
<td>The ability to work effectively in a team, if necessary</td>
<td>3.92</td>
<td>69.97% *</td>
<td>90.77% *</td>
<td>0.08</td>
</tr>
<tr>
<td>The ability to effectively present findings to an audience</td>
<td>3.87</td>
<td>65.33% *</td>
<td>94.66% *</td>
<td>0.11</td>
</tr>
<tr>
<td>The ability to talk and write effectively with peers, professors, and professionals about topics covered in courses</td>
<td>3.82</td>
<td>63.95% *</td>
<td>93.71% *</td>
<td>0.10</td>
</tr>
<tr>
<td>The ability to lead and manage projects in your professional field</td>
<td>3.81</td>
<td>62.70% *</td>
<td>90.51% *</td>
<td>0.04</td>
</tr>
<tr>
<td>Solid knowledge of the topics covered in courses taken</td>
<td>3.76</td>
<td>63.08% *</td>
<td>93.07% *</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Note: A few measures surpassed target levels for the two highest ratings but do not quite meet the average across all years of top three ratings. See Table 35 on the following page.
Table 35

Competencies Meeting Primary Performance Level

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean Rating</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Top 2 Ratings</td>
<td>% Top 3 Ratings</td>
</tr>
<tr>
<td>The ability to use the available technology in your area of expertise</td>
<td>3.70</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>60.28% *</td>
<td>6.77%</td>
</tr>
<tr>
<td></td>
<td>86.83%</td>
<td>4.23%</td>
</tr>
<tr>
<td>An appreciation of humanistic values of relevance for your future careers, such as ethics and professional responsibility</td>
<td>3.61</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>55.40% *</td>
<td>5.50%</td>
</tr>
<tr>
<td></td>
<td>84.28%</td>
<td>3.97%</td>
</tr>
<tr>
<td>Awareness and understanding of other cultures, ideas, concepts, and work methods</td>
<td>3.49</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>51.35% *</td>
<td>8.75%</td>
</tr>
<tr>
<td></td>
<td>81.45%</td>
<td>7.84%</td>
</tr>
</tbody>
</table>

Finally, one measure, “an awareness of the importance of public service,” did not surpass either target level for any given year. See Table 36 below. Nonetheless, the ratings were still positive, with an average of 74.72 percent of exiting students reporting that their education contributed to “an awareness of the importance of public service” to at least a “moderate” extent. Ratings on this measure were highest for the School of Architecture, where the mean rating was 3.59.

Table 36

Competencies Under Performance Level

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean Rating</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Top 2 Ratings</td>
<td>% Top 3 Ratings</td>
</tr>
<tr>
<td>An awareness of the importance of public service</td>
<td>3.29</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>43.53%</td>
<td>6.15%</td>
</tr>
<tr>
<td></td>
<td>74.72%</td>
<td>3.53%</td>
</tr>
</tbody>
</table>

Student Satisfaction Index for Competencies Acquired

As in the first section, a student satisfaction index has been calculated to chart student evaluations across all competency measures from one year to the next. As the following graph in Figure 20 shows below, values have changed little in the brief time period considered, with students consistently expressing positive opinions of the school’s provision of key competencies. Cooper Union’s educational program surpasses primary targets across the board and remains right on the edge of secondary targets.
Indirect Measures: Alumni Survey Data (the full report can be found in section 2.1.2 of the Institutional Research portion of the Middle States electronic resource)

Alumni were asked to rate the extent to which they acquired specific competencies while at The Cooper Union. Ranging from “knowledge of your field” to “commitment to social responsibility,” respondents were given a slightly different five-point scale, with answers ranging from “not at all” to “to a very great extent.”

The competencies most highly ranked were the “ability to think creatively” (4.26) and the “disposition for life-long learning” (4.16). The most recent cohort was the only one to provide mean ratings below 4 in the “creative thinking” category due to increases in “to a moderate extent” (3) ratings.

Least highly ranked of the competencies were: “leadership skills,” “awareness and understanding of other cultures” and “commitment to social responsibility.” Cultural awareness drew a mean score of 3.31. Over the years surveyed, however, there appears to be a generally positive trend following the first cohort’s mean rating of 2.9. The most recent cohort scored higher than the cross-cohort mean for this question (3.41 and 3.27, respectively). For all three questions, the 1996–2000 cohort provided mean ratings above the cross-cohort means.

Across academic programs, alumni felt that they had acquired above-average “knowledge of [their] fields,” providing a mean rating of 3.7. For all cohorts 1981–1990 and after, mean ratings fell below the cross-cohort means. While remaining well above average, the 20-year trend marks an increase in “to a moderate extent” (3) ratings and a decrease in “to a very great extent” (5) ratings.
Architecture alumni gave the highest ratings of all disciplines for the question of “ability to effectively present findings to an audience” \(3.78\), while the ratings for both art and engineering alumni are somewhat lower and virtually indistinguishable. Over the survey period, the general trend for this category was positive, starting with a baseline mean of \(3.02\) for the 1951-1960 cohort and ending with a mean of \(3.71\) for the 1996–2000 cohort. Engineering and art alumni felt most comfortable with their ability to use field-relevant technologies \(3.69\) and \(3.62\), respectively, although architecture alumni provided a below average mean rating \(2.96\) for the same indicator. There are only slight deviations among cohorts from the cross-cohort mean of \(3.6\), indicating that The Cooper Union programs have been particularly effective in adapting to technological advances and incorporating new technologies into coursework. “Ability to effectively handle information resources” earned a cross-discipline mean rating of \(3.6\), and the most recent cohort provided the highest mean rating \(3.92\) recorded for that question. From the 1981–1990 period onward, there has been a strong positive trend in alumni opinion asserting a greater degree of acquisition of the “information resource” competency.

When asked about the degree to which they felt they had acquired “the ability to work effectively in a team,” alumni across all disciplines provided a mean rating of \(3.42\). Engineering alumni responded with a mean of \(3.8\) (very nearly “to a great extent”), while art alumni returned the lowest mean rating \(3.14\) of all schools. Alumni of all majors considered their acquisition of communications skills above average, with a mean rating of \(3.52\). Art and architecture alumni expressed the most confidence in this competency, with mean ratings of \(3.6\) and \(3.63\), respectively. And, cohort data from 1971–1980 onward suggest a positive trend in communications skills, with the most recent cohort’s mean rating \(3.65\) standing well above the cross-cohort mean \(3.43\).

Although few of the categories in the “competencies acquired” section of the survey drew mean ratings above \(4\), two things should be noted. First, the differences between the highest and lowest ratings are only slight. Certain programs appear somewhat more inclined towards imparting particular skills than others, but those differences are small. Each competency surveyed returned above average ratings, although some academic disciplines were found to be more above average than others for teaching specific competencies. Second, while a cohort analysis of the “experiences” section found mean ratings from the 1996–2000 cohort consistently lower than cross-cohort means, the reverse was true here. In most cases, skill acquisition received unusually high mean ratings from the two most recent cohorts. Additionally, several of these spikes followed positive trends, indicating that while The Cooper Union has been increasingly effective at teaching certain skills over the period surveyed, it has been especially effective in recent years. Table 37 below contains a summary of competencies developed at The Cooper Union as reported by respondents to the 2005 Alumni Survey.
Table 37

2005 Alumni Survey, Summary of Competencies: “To what extent have you developed the following competencies during your education at The Cooper Union?”

<table>
<thead>
<tr>
<th>Competency</th>
<th>Base</th>
<th>Not at all</th>
<th>To a limited Extent</th>
<th>To a moderate Extent</th>
<th>To a great Extent</th>
<th>To a very great Extent</th>
<th>No Response</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of your field</td>
<td>1659</td>
<td>1.50%</td>
<td>6.20%</td>
<td>30.40%</td>
<td>42.10%</td>
<td>19.80%</td>
<td>30</td>
<td>3.72</td>
</tr>
<tr>
<td>Communication skills</td>
<td>1659</td>
<td>2.50%</td>
<td>12.00%</td>
<td>40.80%</td>
<td>31.00%</td>
<td>13.70%</td>
<td>30</td>
<td>3.41</td>
</tr>
<tr>
<td>The ability to think creatively</td>
<td>1659</td>
<td>1.10%</td>
<td>4.70%</td>
<td>19.40%</td>
<td>36.40%</td>
<td>38.40%</td>
<td>32</td>
<td>4.06</td>
</tr>
<tr>
<td>Leadership skills</td>
<td>1659</td>
<td>5.80%</td>
<td>14.30%</td>
<td>39.90%</td>
<td>26.90%</td>
<td>13.10%</td>
<td>45</td>
<td>3.27</td>
</tr>
<tr>
<td>The ability to effectively present findings to an audience</td>
<td>1659</td>
<td>6.50%</td>
<td>14.80%</td>
<td>36.20%</td>
<td>26.40%</td>
<td>16.10%</td>
<td>36</td>
<td>3.31</td>
</tr>
<tr>
<td>The ability to effectively handle information resources</td>
<td>1659</td>
<td>2.50%</td>
<td>10.30%</td>
<td>29.10%</td>
<td>38%</td>
<td>20.20%</td>
<td>42</td>
<td>3.63</td>
</tr>
<tr>
<td>Disposition for life-long learning</td>
<td>1659</td>
<td>2.20%</td>
<td>6.00%</td>
<td>18.90%</td>
<td>33.60%</td>
<td>39.30%</td>
<td>40</td>
<td>4.02</td>
</tr>
<tr>
<td>The ability to work effectively in a team</td>
<td>1659</td>
<td>3.80%</td>
<td>9.50%</td>
<td>30.20%</td>
<td>34.00%</td>
<td>22.60%</td>
<td>41</td>
<td>3.62</td>
</tr>
<tr>
<td>The ability to use the available technology in your area of expertise</td>
<td>1659</td>
<td>2.60%</td>
<td>11.00%</td>
<td>31.10%</td>
<td>33.40%</td>
<td>21.90%</td>
<td>49</td>
<td>3.61</td>
</tr>
<tr>
<td>An awareness and understanding of other cultures</td>
<td>1659</td>
<td>10.10%</td>
<td>19.10%</td>
<td>33.20%</td>
<td>22.70%</td>
<td>14.90%</td>
<td>39</td>
<td>3.13</td>
</tr>
<tr>
<td>An appreciation of humanistic values</td>
<td>1659</td>
<td>6.60%</td>
<td>15.70%</td>
<td>32.90%</td>
<td>26.40%</td>
<td>18.40%</td>
<td>47</td>
<td>3.34</td>
</tr>
<tr>
<td>A commitment to social responsibility</td>
<td>1659</td>
<td>9.70%</td>
<td>18.50%</td>
<td>33.60%</td>
<td>20.60%</td>
<td>17.60%</td>
<td>44</td>
<td>3.18</td>
</tr>
</tbody>
</table>

Loop-closing
Least highly ranked of the competencies in the Alumni Survey were: “leadership skills,” “awareness and understanding of other cultures” and “commitment to social responsibility.” In the Exit Survey, they were: “humanistic values” “awareness of other cultures” “public service.”
A look at ratings for these competencies shows that “leadership skills” is not ranked as high as other competencies, but The Cooper Union does not consider that results warrant interpretation as a weakness of our programs. As shown above, The Cooper Union educates tomorrow’s leaders, and these acknowledge that their Cooper Union education contributes to their professional success. The School of Engineering has discussed the importance of developing skills in leadership. This has been a topic of conversation with the Engineering Advisory Board and has led to a series of speakers on this topic, as well as even stronger emphasis on “soft-skills” as part of many courses.

The results relating to cultural awareness and humanistic values are being actively discussed in the Curriculum Committee in the Faculty of Humanities and Social Sciences as it (a) redrafts the SLOs for the core sequence and (b) selects a range of electives to better address these perceived weaknesses.

**Suggestions and Recommendations**

This self-study:

**Suggests** that the chief academic officer sponsor faculty teaching practica in which teachers share their expectations of student success and knowledge of teaching practices across the four faculties.

**Suggests** the exploration of new assessment methodologies with assurance of adequate funding. This should include more benchmarking with regional and global data and more qualitative research to probe trends in quantitative questionnaires.
Conclusion

The objective of this self-study has been “Sustaining the Mission.” Although operating budgets will remain constrained over the next decade, The Cooper Union has made substantive and significant progress toward securing its financial future.

There has indeed been some psychic wear and tear resulting from years of budgetary constraint. Nevertheless, the unique mission of the college and culture of the schools continue to engender great personal commitment from faculty, staff, students and alumni. They are genuinely inspired by Peter Cooper’s original vision and the 150-year record of continuous achievement; these legacies continue to energize and inform their work.

Moreover, by many measurable outcomes—national scholarships, alumni graduate school acceptances and fellowships, reaccreditation success stories, graduate careers, alumni awards and exhibitions and faculty accomplishments—The Cooper Union has prevailed through lean times with its academic programs very much intact and still “outstanding,” as called for by its mission.

The Cooper Union has also reestablished itself as an important civic institution and forum; its continuing education is thriving and its public programming both important and exciting.

Reviewing the 10 recommendations and 14 suggestions produced by this self-study, the following three overarching themes appear significant.

Assessment and Planning

Since the last accreditation visit from Middle States, The Cooper Union has developed many assessment practices at the budgetary and academic unit level. The assessment program is solid in the three professional schools and the Faculty of Humanities and Social Sciences, as acknowledged by accreditation agencies in their reports. We have systematically gathered data at the institutional level concerning facilities and services. These practices are driven by the mission, consistent with the governances, appropriate to institutional size, and cost effective. As the accreditation for the academic programs has become more assessment-based, many aspects of the program that once were anecdotal have become formalized. Like other colleges, The Cooper Union could be more consistent and effective in “closing the loop,” especially in documenting the uses of assessment for program improvement.

In the current iteration of strategic planning, goals, resource allocation and assessment will be more tightly linked. The new strategic plan has clearly defined how we should harness our efforts and build on our strengths. Given continued fiscal restraint over the short term, we will now have to ensure that the goals of the strategic plan determine institutional priorities.
and resource allocation. To this end, the self-study has recommended the creation of a planning and assessment council, encouraged the Academic Council to play a more active role in budgeting and recommended the hiring of a Provost or Vice President for Academic Affairs to better represent the programs at the Cabinet level.

As The Cooper Union emerges from several years of budgets that just kept pace with the higher education price index, following two years of significant budget cuts (2002–04), it will be necessary to pay particular attention to long-term planning in work plans across the institution. The institution will always be trying to raise additional money, but for which long range goals?

**Communication**

This self-study has found that the flows of communication have improved from the Office of the President both to the internal audience, and to the surrounding community—indeed, to the nation. The old complaints about The Cooper Union being “the best kept secret” in higher education are seldom heard anymore.

Internal communications, however, flow along single chains from President or Academic Council via the Deans and unit heads to the faculty and staff. Cross-cutting communication is lacking. Several measures might be taken throughout the year to better inform and apprise The Cooper Union community of major decisions, policies initiated, or how short- and long-term planning agendas have been reached and by whom. These could include: Reports from Academic Council (twice a year), an executive summary of the State of The Cooper Union and the introduction of an Intranet that announces all new faculty and staff at the beginning of each semester, clear summaries of changes in benefits policies or procedures and campus alerts.

**The “Union” in “The Cooper Union”**

In addition to matters of formal communication there remains the issue of the relations among the three schools and the Faculty of Humanities and Social Sciences. These “silos” as they are sometimes called, are efficient, responsive entities with a high degree of academic integrity. Disciplinary strength and focus are a result.

On the other hand, The Cooper Union promotes a unique mix of disciplines and at times, overlooking the term “advancement,” refers to the possibility of a union of science and art. For Peter Cooper’s generation, art and science were parallel endeavors that did not demand any “union”; their shared “advancement” (of the college’s title) was dependent on the existence of correct political conditions. Only in the 20th century has there been growing talk about the “two cultures” of art and science.
Presently, students express clearly the wish for more interschool contact above and beyond courses in the humanities and social sciences in which all students share the same intellectual experience. For some time, the adjacency of the three schools was interpreted as the underutilized capacity for interdisciplinarity. The last monitoring report to Middle States announced the creation of a series of interdisciplinary seminars. Disagreements over credit approval for such courses slowed this important initiative. Additional efforts by the current administration have led to some progress; however, more rapid developments in this area are essential to the future.

Interdisciplinarity is best developed, over the short term, through student choice. A final suggestion from this self-study is that a combination of measures—more flexible and informed scheduling, attention to opening further free elective credit opportunities and the implementation of a joint Curriculum Advisory Committee—is the basis for exciting student work between the disciplines. These developments, together with the installation of a Provost, a Planning Council and other cross-cutting initiatives might establish the ground for new unions.

In its 150th year, The Cooper Union is at the threshold of an exciting period. With the opening of a state-of-the-art, environmentally sound, academic building, face-to-face with the Foundation Building of Peter Cooper’s original bequest, The Cooper Union will continue to possess a physical adjacency to express the heart of its mission. The schools will engage each other in new ways and establish new points of connection. The trustees, faculty, staff and alumni are energized by the prospect and determined to achieve outstanding results.