

Faculty Senate Meeting
Wednesday, October 27, 2010
3:30 p.m. - 5:30 p.m. – Adelbert Hall, Toepfer Room

AGENDA

3:30 p.m.	Approval of Minutes from the September 23, 2010 Faculty Senate meeting, <i>attachment</i>	A. Levine
	President's Announcements	B. Snyder
3:35 p.m.	Provost's Announcements	B. Baeslack
	Chair's Announcements	A. Levine
3:40 p.m.	Report from the Executive Committee	G. Chottiner
	Report from Interim Secretary of the Corporation	C. Trembl
3:45 p.m.	Presentation by the Joint Provost/Faculty Senate <i>ad hoc</i> Task Force on a University Common Undergraduate Core Curriculum Senate	G. Chottiner D. Feke
4:10 p.m.	Report by the Budget System Review Committee	C. Cullis
4:35 p.m.	Update from International Affairs	D. Fleshler
5:00 p.m.	Summary of NRC's Report on Doctoral Programs	C. Rozek J. Gubbins



Faculty Senate Meeting

Wednesday, October 27, 2010

3:30-5:30 p.m. – Adelbert Hall, Toepfer Room

Members Present

Kathryn Adams
Bud Baeslack
Timothy Beal
Jessica Berg
Ronald Blanton
Gary Chottiner
Elizabeth Click
Mary Davis
Julia Grant
Jared Hamilton
Sue Hinze
Peterson Huang
Christine Hudak

David Hutter
Quentin Jamieson
Elizabeth Kaufman
Kenneth Ledford
Alan Levine
Joseph Mansour
Jim McGuffin-Cawley
Diana Morris
Carol Musil
G. Regina Nixon
John Orlock
Leena Palomo
Mary Quinn Griffin

Roy Ritzmann
Cassandra Robertson
Alan Rocke
Beverly Saylor
Jonathan Sadowsky
JB Silvers
Barbara Snyder
Lee Thompson
Susan Tullai-McGuinness
David Wilson
Elizabeth Woyczynski
Nicholas Ziats

Members Absent

Keith Armitage
Hussein Assaf
Bruce Averbook
Lee Blazey
Ben Brouhard
Richard Buchanan
Martha Cathcart
Mark Chance
David Crampton

Lisa Damato
Sillas Duarte
Faye Gary
Jim Kazura
Ken Loparo
Kalle Lyytinen
Laura McNally
Frank Merat
Heather Morrison

Daniel Ornt
Faisal Quereshy
Mark Smith
Sorin Teich
Michele Walsh
Georgia Wiesner
Gary Wnek
Xin Yu

Others Present

Christine Ash
Glenn Bieler
Bob Brown
John Clochesy
Donald Feke
David Fleshler

Marilyn Mobley
Dean Patterson
Charles Rozek
Ginger Saha
Chris Sheridan

John Sideras
David Singer
Lynn Singer
Colleen Trembl
Jeff Wolcowitz

Call to Order

Professor Alan Levine, chair, Faculty Senate, called the meeting to order at 3:30 p.m.

Approval of minutes

Upon motion, duly seconded, the minutes of the Faculty Senate meeting of September 23, 2010 were approved as submitted.

President's announcements

President Barbara Snyder said the university finished the fiscal year in the black, and the financial surplus was bigger than last year's. Pedestrian signs were added at the crosswalks on Adelbert Road; they need to be set out every morning. A security task force is evaluating pedestrian and bicycle traffic patterns. Management centers are being evaluated for efficiency and effectiveness on a 5-7 year cycle. The offices of Procurement and the Information Technology Services were the first to be evaluated. An architect selection process is underway for the new student center and the architect selection process will start shortly for renovations at the university's new performing arts center. The university's Climate Action Plan is due in January 2011; Case Western Reserve is one of 670 universities that have signed an agreement to be carbon neutral by 2050.

Provost's announcements

Provost Bud Baeslack said proposals for the second round of investments in the research alliances are being accepted. New research proposals need to align with the established alliances. Research proposals which were awarded seed money last year have been encouraged to submit funding proposals again this year.

Chair's announcements

Prof. Alan Levine, chair, said that in spring 2010 the Faculty Senate promised action by the end of fall 2010 on the Case School of Engineering (CSE) proposal to make some SAGES classes optional. In November the Executive Committee will consider how to bring the CSE proposal to another vote. The Faculty Senate may vote on the CSE proposal in December. Prof. Levine suggested that a vote of the Undergraduate Program Faculty on the CSE proposal may also take place in December. The activities of the Joint Provost/Faculty Senate *ad hoc* Committee on a University Common Undergraduate Core Curriculum have fallen behind the timeline outlined in the resolution to impanel and charge the committee. The Executive Committee needs to redraft that resolution to establish a new timeline for the *ad hoc* committee that will allow more time for a comprehensive consideration of a common core curriculum.

Report from the Executive Committee

Prof. Gary Chottiner, vice-chair, Faculty Senate reported on the October meeting of the Executive Committee. The Executive Committee heard the final report by the Joint Provost/Faculty Senate *ad hoc* Task Force on a University Common Undergraduate Core Curriculum and the final report of the Budget System Review Committee. The Executive Committee approved two resolutions sent forward by the Faculty Senate Committee on Undergraduate Education (FSCUE) concerning study abroad and academic certificates.

Report from the Secretary of the Corporation

Colleen Trembl, interim general counsel and secretary of the corporation, reported on the August 9, 2010 meeting of the Board of Trustees. The trustees approved resolutions for new endowments and new appointments for faculty. Service awards were presented to honor Dan Clancy, executive director for alumni relations and the late Jim Conway, university fundraiser, for their outstanding contributions to Case Western Reserve. There were reports on health care benefits for faculty and staff, campus security, and university rankings in *US News and World Report*.

Report from the Joint Provost/Faculty Senate *ad hoc* Task Force on a University Common Undergraduate Core Curriculum

Don Feke, vice provost for undergraduate education and Prof. Gary Chottiner, vice chair, Faculty Senate served as co-chairs of the task force. The task force investigated best practices for common core curriculums at peer and aspirant universities. There are a wide variety of practices; some universities have common core curriculums, some don't. The report describes the advantages and disadvantages, as noted by the reviewed universities, of having a university common undergraduate core curriculum. A senator encouraged the Senate to establish a realistic timeline that will allow enough time for faculty to consider a possible common core curriculum and to provide copious publicity for the university wide discussion.

Update from International Affairs

David Fleshler, associate provost, presented an update from the division of International Affairs. Several committees are in the process of reviewing and recommending practices to internationalize the campus. A variety of community-wide forums have been organized in fall 2010 to solicit input from faculty, staff and students. Plans to hire new staff are proceeding as recommended by the committees.

Report by the Budget System Review Committee

Prof. Chris Cullis, who chaired the Budget System Review Committee, presented the committee's final report. One of the recommendations was to establish sunset clauses for funding initiatives which would set dates when success would be measured and future funding would be reconsidered. The report also recommends that the university establish a university budget committee that would provide input at the early stages of university budget planning. Prof. JB Silvers, chair, Faculty Senate Budget Committee said that the committee is considering what role it will play in staffing the new committee. Members of the current Faculty Senate Budget Committee report about school and college budget concerns, and they review university budget reports. In contrast, faculty members on the new budget committee would develop a greater level of expertise and play an active role in shaping university budget strategies. Some of the recommendations will be implemented immediately; others recommendations will be experimentally implemented in spring 2011 and finalized for full implementation in fall 2011.

Summary of NRC's Report on Doctoral Programs

Chuck Rozek, dean of graduate studies, and Jean Gubbins, director of institutional research, presented the National Research Council's report on graduate degree programs at US universities. Ms. Gubbins explained how the data provided by Case Western Reserve was used in the NRC report. Websites where faculty can get more information about the report were presented:

<http://www.nap.edu/rdp/>

<http://graduate-school.phds.org/university/case/university/programs>

<http://chronicle.com/page/2010-Rankings-Doctoral/335/?=CS84957HE2010ord>

Upon motion, duly seconded, the meeting was adjourned at 5:30 p.m.

APPROVED
by the
FACULTY SENATE



ELIZABETH H. WOYCZYNSKI
SECRETARY OF UNIVERSITY FACULTY

REPORT OF THE
JOINT PROVOST/FACULTY SENATE
***ad hoc* TASK FORCE ON A UNIVERSITY**
COMMON UNDERGRADUATE CORE CURRICULUM

October 1, 2010

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1. EXECUTIVE SUMMARY

Undergraduate curricula at U.S. universities typically contain a combination of general education courses, major-field requirements, and open electives. The question that motivated the establishment of this Task Force is whether CWRU should intentionally and purposefully choose to require a specific core of general education topics/courses that would be common for all undergraduates and would be governed at the university level (in contrast to the school/college level). This report is intended to provide information about other universities that shows how each addresses the concept of a common core requirement.

The Task Force discovered that there exists a wide range of practices and philosophies regarding a common core for general education. Some universities make clear statements about their motivation for common core requirements and have established faculty governance bodies to oversee their core. Some universities have philosophies that argue against common core requirements and rely instead on individual schools to set general education requirements. Still other universities advertise that they have no common requirements for their undergraduates, promoting freedom of choice and flexibility, but a closer examination of their regulations reveals that common requirements do exist.

The Task Force performed its research by investigating materials posted on websites and by making personal contact with representatives at some schools. The greatest attention was focused on nine universities (Carnegie-Mellon, Dartmouth, Duke, Emory, Johns Hopkins, Rice, Rochester, Vanderbilt, and Washington University) which were chosen for in-depth study because they have similar characteristics to CWRU and are our peers/aspirants. Less detailed information on general education requirements at 33 other schools is presented in Appendix III.

In this report, the Task Force identifies a number of advantages and disadvantages for having an institution-wide common core requirement.

2. CHARGE TO THE TASK FORCE

The complete charge to our Task Force can be found in Appendix I. The key section that shaped this report reads as follows.

“To facilitate the consideration of instituting a University Common Undergraduate Core Curriculum, the ad hoc Task Force is charged to deliver to the Faculty Senate and Provost a report containing the following:

- An analysis of the philosophy underlying the use of a common undergraduate core curriculum within colleges and universities, including a discussion of the advantages and disadvantages of utilizing a common undergraduate core for undergraduate education

- An examination of the practices in use at other institutions for the governance and management of a common undergraduate core curriculum”
-

The members of this Task Force were appointed by the Faculty Senate Executive Committee, Provost, and UPF (*Undergraduate Program Faculty*) Deans.

The Faculty Senate Representatives were:

Gary Chottiner (CAS)

Ken Loparo (CSE)

The Provost's Representative was:

Don Feke

The School Representatives were:

Pat Crago (CSE)

Julia Grant (WSOM)

Patricia Underwood (SON)

Peter Whiting (CAS)

Don Feke and Gary Chottiner served as co-chairs.

3. WHAT CONSTITUTES A COMMON CORE CURRICULUM?

We encountered widespread confusion and disagreement about the meaning of the terms *common* and *core* when applied to an undergraduate general education curriculum.

For the purposes of this report, we have chosen to define a common core as one which an institution (*rather than individual schools or colleges within that institution*) requires of all undergraduates. In this definition, a requirement to take four humanities and social science courses would not be considered a common core if each school independently determines which courses satisfy the requirement.

We define, for this report, a general education requirement (GER) more broadly to include disciplines or areas outside of the major, where students may select specific courses from menus, based on options and dependant on possible sub-requirements within individual schools. An example is a requirement to take four humanities and social science courses from among a large selection of offerings.

There was nearly unanimous agreement on one aspect of a common core curriculum, namely that it should be controlled by an institutional faculty body rather than by individual schools within an institution, thus pointing to faculty governance and administrative oversight as important aspects of our research. Intentionality of the institution in choosing to have all of its undergraduate students complete courses in

specified areas, rather than the coincidence of general education requirements adopted by individual schools within the institution, is key to our concept of a common core. However, based on information available to our Task Force, it is often difficult to determine whether or not a given institution has been purposeful about commonality in establishing their general education requirements.

The Task Force recognized that, for practical purposes, we should try to make clear the similarities and differences between what other universities do and the current set of general education requirements at CWRU. The general education requirements in use at CWRU are summarized in Appendix V of this report.

4. COMPARABLE INSTITUTIONS

4a. RATIONALE FOR COMPARISONS

We initially identified over 40 institutions which might be useful for comparison purposes.

- i. Members of the University Athletic Conference (*Brandeis University, Carnegie Mellon University, Emory University, New York University, University of Chicago, University of Rochester, Washington University in St. Louis*)
- ii. “Ten Universities” group often used as our peer/aspirant comparison group. (*Dartmouth, MIT, Rochester, Washington University in St. Louis, Northwestern, Vanderbilt, Duke, Johns Hopkins, Carnegie Mellon, CWRU*)
- iii. CWRU's Center for Institutional Research <http://www.case.edu/president/cir/cirhome.html> has adopted a standard comparison group consisting of
Boston College, Boston University, Brandeis University, Caltech, Carnegie Mellon University, Chicago, Cornell, Dartmouth, Duke, Emory University, George Washington University, Georgetown, Johns Hopkins University, Lehigh University, Miami, MIT, New York University, Northwestern, Notre Dame, NYU, Penn, Rensselaer Polytechnic, Rice, Rochester, Stanford, Syracuse, Tulane, Tufts, USC, Vanderbilt, Wake Forest, Washington University
- iv. Various highly ranked private research institutions not included on these other lists (*Brown, Columbia, Harvard, Princeton, Yale*)
- v. Select competitive public universities (*Georgia Tech, University of Illinois at Urbana-Champaign, Michigan, North Carolina, Ohio State, Purdue, University of Texas-Austin*)

After performing some preliminary research on many of these institutions, the Task Force decided to focus its attention on a much smaller number of universities that are similar to CWRU in the breadth of degrees offered and the nature of the students they attract. This smaller group consists of Carnegie-Mellon, Dartmouth, Duke, Emory, Johns Hopkins, Rice, Rochester, Vanderbilt and Washington University. Each institution was examined closely by at least two members of the Task Force to minimize the possibility of a misinterpretation of that institution’s curriculum and policies. Information about

some of the other institutions listed above is provided in Appendix III, but this data is unverified and less detailed.

4b. REPORTS FROM NATIONAL EDUCATIONAL ORGANIZATIONS

CWRU is certainly not the first institution to examine core curricula and general education requirements; in fact, this is not the first time such a study has been done at CWRU. In our research of other institutions, we found several that have had, or are having a similar discussion about general education. We also found a considerable body of research and tried to examine as much of it as time allowed. Some particularly useful resources were found at

- i. AAC&U <http://www.aacu.org/> - see <http://www.aacu.org/resources/generaleducation/index.cfm> and <http://www.aacu.org/resources/curriculum/index.cfm>

Quoting from the Executive Summary of a consultant's May 2009 report "Trends and Emerging Practices in General Education",
http://www.aacu.org/membership/documents/2009MemberSurvey_Part2.pdf ,

"A large majority of AAC&U member institutions (78%) say they have a common set of intended learning outcomes for all their undergraduate students, and these outcomes address a wide variety of skills and knowledge areas." and "The vast majority (89%) of institutions are in some stage of assessing or modifying their general education program ..."

- ii. The Reinvention Center <http://www7.miami.edu/ftp/ricenter/index.html> web site provides links to a wealth of material with descriptions of curricula at several institutions (*including SAGES at CWRU*)
<http://www7.miami.edu/ftp/ricenter/resgened.htm>.
- iii. "General Education and Liberal Learning – Principles of Effective Practice" by P. Gaston
- iv. "Revising General Education – And Avoiding the Potholes" by P. Gaston and J. Gaff

4c. EXTERNAL CONSTRAINTS: ACCREDITATION

Any consideration of a common core and general education requirements has to take into account constraints imposed by the accreditation bodies that govern the university and individual schools or departments within the university. The detailed regulations, or at least those sections that pertain to undergraduate programs, are provided in Appendix IV.

Overall university accreditation for CWRU is through the Higher Learning Commission (HLC) of the North Central Association of Colleges and Schools. One component of accreditation Criterion Four is "The organization demonstrates that acquisition of a breadth of knowledge and skills and the exercise of intellectual inquiry

are integral to its educational programs.” The HLC expects institutions to deliver general education content that support this accreditation criteria. However, the HLC is silent on whether general education requirements should be common across the institution.

5. PHILOSOPHIES UNDERLYING A COMMON CORE

The Task Force was specifically charged with producing “An analysis of the philosophy underlying the use of a common undergraduate core curriculum within colleges and universities...” A selection of university statements describing their philosophy of general education is provided below. Some of these statements come from the arts and sciences faculty rather than the university as a whole; the reasons for including these will be made clear later in this report. Additional information is available in Appendices II and III.

Dartmouth

“In the most thorough revision of graduation requirements in almost three-quarters of a century, Dartmouth’s Faculty of Arts and Sciences voted in the Spring of 1992 to significantly alter and sharpen distributive and general education requirements, and to intensify the culminating experience within each major. [ASIDE: *Engineering programs at Dartmouth are contained in Arts and Sciences.*] These changes were made with a view to making Dartmouth’s graduates even better prepared for the challenges and opportunities of the twenty-first century. The principles of a liberal arts education, at Dartmouth and elsewhere, have been that a student should complete some concentrated course of study --- a major field --- in which they will display some real depth and mastery. At the same time, a liberally educated person is one who has been exposed to a wide range of fields and insights. The modifications in Dartmouth’s degree requirement aim at enhancing both the *depth* and the *breadth* objectives of a liberal arts education. An ongoing policy of creating and sustaining a high faculty/student ratio is one way Dartmouth supports this. This policy is at the heart of the curriculum reform. The changes that were implemented require students to spend more time working with faculty on a range of academic activities --- from academic planning through additional small group classes and one-to-one sessions. These changes recognize the complexity of the world in which Dartmouth students will live and work after graduation, and in so doing, reflect the greater breadth and depth of knowledge as it exists today.”

Duke

From a 2004 review of curriculum that Duke’s Trinity College of Arts and Sciences carried out, <http://dukespace.lib.duke.edu/dspace/handle/10161/1507>

“The concept of a liberal arts education is central to what it means to be an American university. The curriculum of a university, in turn, is central to how that institution

imparts its view of what it means to be an educated person. Although it is difficult to settle on a single set of credentials that define an ideal liberal arts education, most would agree that some framework must be provided to ensure that students are exposed to a broad range of subjects and ways of thinking about the world during their undergraduate education. Within this framework, however, a balance must be struck between specifying the particulars that embody the institution's educational goals and allowing the flexibility needed for students to add depth and breadth to their nascent intellectual interests."

Emory

"The general education component of an Emory undergraduate education is organized to present an array of intellectual approaches and perspectives as ways of learning rather than a prescribed body of content. Its purposes are to develop students' competencies in the skills and methods of writing, quantitative methods, a second language, and physical education; to acquaint students with methodologies that characterize the humanities, the social sciences, and the natural sciences as the three broad divisions of learning in the arts and sciences; to deepen students' perspectives on national, regional, and global history and culture, and to give every student some exposure to an interactive seminar experience. These purposes are met by a student's choosing from a range of individual courses within a clearly defined framework. The list of courses satisfying General Education Requirements is constantly under review. For the latest version of the list, please see <http://college.emory.edu/gers>."

Harvard

Even though Harvard is not on our list of institutions to examine in depth, they are included in a certain sections of this report because a few years ago Harvard's faculty had a spirited debate over its general education curriculum and this debate attracted attention by the national media.

"The goals of the new General Education curriculum are to prepare students for civic engagement; teach students to understand themselves as products of — and participants in — traditions of art, ideas, and values; prepare students to respond critically and constructively to change; and to develop students' understanding of the ethical dimensions of what they say and do."

Johns Hopkins

"It is widely recognized that an undergraduate education must provide the groundwork for a student's career and professional development. However, undergraduates are also expected to develop broad intellectual interests that will enrich their own lives and their contributions to society. In many institutions, this second goal is

embodied in a required set of core courses taken by all students. At Johns Hopkins, students are given a choice in the matter."

Although JHU gives their students "choice in the matter", JHU does in fact have a common core curriculum that requires 30 credits outside the major plus two writing-intensive courses. The details are provided later in this report and at http://www.jhu.edu/design/oliver/academic_manual/BA_BS.html.

Rice

Rice has a university-wide common core curriculum. "The distribution system presupposes that every Rice student should receive a broad education along with training in an academic specialty. This goal is achieved by courses that are broad based, accessible to non-majors, and representative of the knowledge, intellectual skills, and habits of thought that are most characteristic of a discipline or of inquiry across disciplines."

The faculty at Rice has been considering revisions in their GER. Some details about this process are provided in Appendix II.

Rochester

"Build Your Own." "Rochester recognizes that no two students are alike, so your college education can't follow a "general education" path. That is why the Rochester Curriculum—unique in higher education—has no required subjects. You build your own path and learn what you love."

Although this suggests that Rochester does not have a common core curriculum, the next paragraph reads:

"Students in Arts, Sciences, and Engineering pursue a major in one of the three great divisions—humanities, social sciences, and natural sciences—and complete a cluster of three or more related courses in the two areas outside their major. The result is an education that reflects students' priorities."

Vanderbilt

Vanderbilt does not have a common core. However, shortly before 2008, (then) Chancellor Gee created a task force described as follows at <http://www.vanderbilt.edu/facultysenate/Commons.htm> "Recently Chancellor Gee has announced the formation of several university-wide committees—under the direction of Provost and Vice Chancellor for Academic Affairs Nick Zeppos and Vice Chancellor for Student Life and University Affairs David

Williams—to explore ways to enhance an integrated and balanced approach to the total learning environment at Vanderbilt. Specifically, he states: “As we approach the opening of The Commons and College Halls in 2008, there needs to be a strong alignment of structure, resources, and philosophy so we can effectively continue to create the diverse and vibrant intellectual and social community essential for the success of future generations of Vanderbilt students.” His initiative is aimed at defining and articulating “the values by which this intellectual and social engagement will be guided.”

Some institutions justify NOT having a common core.

Carnegie-Mellon

"The distinct strength of Carnegie Mellon's approach to education is the depth and rigor of discipline-specific study, which drives and informs the breadth of its curriculum. Our approach of deep exploration in a field, combined with problem-solving, real-world relevance, encourages students to collaborate across disciplines, to challenge their own perspectives and ideals, and to learn to value the viewpoints and contributions of others.

This combination of depth in learning and breadth in collaboration fosters the development of critical thinking, curiosity, creativity, personal integrity, social responsibility, and professional ethics."

The engineering school at CMU has its own statement of philosophy. The complete text is provided in Appendix II and an excerpt is copied below.

"From its earliest days, Carnegie Institute of Technology (CIT) has considered undergraduate education to be the key element in the development of future leaders. In this regard, CIT has adopted a plan for education that is designed to equip students with the capacity to learn and to continue the process of self-education throughout their lives. The present curriculum incorporates this philosophy by providing the opportunity for both breadth in a number of engineering, science, humanities and fine arts areas as well as depth in a major area of concentration."

Washington University

Washington University has a minimal common core. Their philosophy, as advertised by their Office of Undergraduate Admissions, emphasizes flexibility and contains the following points.

When do I choose a major?

Typically, you would choose a major area of study by the end of your sophomore (second) year.

How easy will it be for me to change my major?

If you decide on a major and later change your mind, you can change your majors—even change academic divisions—easily.

If I apply to one of the colleges now and change my mind once I enroll, is it hard to switch?

Washington University is where you want to be when you change your mind! We encourage our students to change divisions if their interests change.

What is the first-year curriculum? What courses are required?

At Washington University, we are committed to making your academic experience an extraordinary one. In designing your first-year curriculum, you and your advisor will typically choose from interdisciplinary courses, linked courses, courses designed to help you hone your communication skills, and courses that emphasize field study and even include an international experience. We want each student to work with his or her advisor and build each year's curriculum on the unique learning opportunities we offer, starting with that important first year. First-year students generally take no more than five courses each semester, and it is not unusual to begin your college career with a four-course semester (and still be able to graduate in four years). All first-year students are required to take one semester of Writing 1, our one-semester freshman writing course.

6. SPECIFIC REQUIREMENTS WITHIN A COMMON CORE

Before analyzing the justifications for adopting a common core curriculum, it's useful to examine the implementation of the common core and/or GER's adopted by each institution. In principle, a common core could be based on specific courses, categories or types of courses, competencies, skill sets, activities, themes, etc. In practice, this normally comes down to course requirements, most often menus of courses approved by faculty to meet various educational goals. Depending on the definition of *common* and *core*, those institutions which have a common core may call for only one or two courses, or up to a third of a student's overall degree requirements.

Based on the justifications seen for employing a common core in the institutions we reviewed, one might expect to encounter a variety of elements in the course requirements. Examples include:

- a. communication skills (This is a common element at many institutions and might be satisfied with a specific writing course or by various courses which incorporate writing and other communication skills and are somehow marked as satisfying this requirement.)
- b. critical thinking, including research and analysis skills
- c. experiential learning
- d. group dynamics, teamwork
- e. leadership skills

- f. ethical decision making & professional responsibilities
- g. community engagement
- h. international experiences such as study abroad
- i. an appreciation of global economic, environmental, and societal concerns
- j. familiarity with contemporary issues
- k. preparation for life-long learning
- l. physical education courses

Specific examples of common cores and general education requirements are given below. More detail about the requirements at each institution is provided in Appendix II.

Carnegie Mellon

CMU students apply and are admitted to specific schools within the university. CMU does have one common course that all undergraduates must take – “Computing at Carnegie Mellon”. However, this is basically a one-credit course that is “intended to help students understand what resources are available as well as their responsibilities as users in our computing community”, not really what we think of as part of a common core. The individual GER’s at CMU are reviewed in Appendix II.

Dartmouth

Dartmouth students are admitted to the university as a whole. Although Dartmouth does have accredited undergraduate engineering programs, these and other undergraduate programs fall within the Faculty of Arts & Sciences. Dartmouth has a writing requirement, linked to proficiency; a required first year seminar selected from a menu of options, a foreign language proficiency requirement and other GERs with menus that depend on the major.

“The institution ensures that all undergraduate students complete one-third of their studies (*or the equivalent of forty semester hours in a bachelor's degree program, or the equivalent of twenty semester hours in an associate's degree program*) in general education.”

The specific categories of course requirements are included in Appendix II.

Duke

Students at Duke are admitted to separate schools. There are common requirements but they are incidental, not planned. Duke currently has a matrix model with categories and different ways of meeting them (*areas of knowledge vs. ways of knowing/modes of inquiry*). Areas of knowledge includes: arts, civilizations, natural science, quantitative

studies & social sciences. Modes of inquiry includes: cross-cultural inquiry; science, technology & society; ethical inquiry; foreign language; writing & research. First year students have to take one seminar course, followed by two seminar/independent-study/thesis courses. See <http://www.plu.edu/~gened/duke-university.html> for more details.

The Dean and Vice Provost for Undergraduate Studies at Duke reports that students are pushing for a reduction in GER to allow greater flexibility. Duke did a thorough undergraduate curriculum review in 2004 and issued a report on their “Curriculum 2000”. This report, which can be found at <http://dukespace.lib.duke.edu/dspace/handle/10161/1507>, covers many of the issues that have been raised at CWRU. Some of its major conclusions are that the requirements should be simplified and lessened. Duke is currently reorganizing and probably moving to a university curriculum for undergraduates. However, they are not talking about moving to a general admission system, *i.e.* students will still be admitted to separate schools.

Emory

Emory has nursing <http://www.nursing.emory.edu/admission/undergraduate/bsn.html> and business http://www.goizueta.emory.edu/degree/undergra_cur_curriculum.html programs for undergraduates but does not offer engineering degrees. The nursing and business degrees require that students take about 60 credits of liberal arts studies, most likely at Emory College, before being admitted to the professional program. See <http://www.emory.edu/home/admission/undergraduate/index.html> for an explanation of how this is handled. The College of Arts & Sciences requirements can be found at http://college.emory.edu/home/academic/general_education/

Emory has a common core that is organized to present an array of intellectual approaches and perspectives as ways of learning rather than a prescribed body of content. Its purposes are to develop students’ competencies in the skills and methods of writing, quantitative methods, a second language, and physical education; to acquaint students with methodologies that characterize the humanities, the social sciences, and the natural sciences as the three broad divisions of learning in the arts and sciences; to deepen students’ perspectives on national, regional, and global history and culture, and to give every student some exposure to an interactive seminar experience. These purposes are met by a student’s choosing from a range of individual courses within a clearly defined framework. The list of courses satisfying General Education Requirements is found at <http://college.emory.edu/gers>.

Harvard

The new program requires students to take a semester-long course in each of the following areas:

- Aesthetic and Interpretive Understanding to help students develop skills in criticism, that is, aesthetic responsiveness and interpretive ability.

- Culture and Belief to develop an understanding of and appreciation for traditions of culture and belief in human societies.
- Empirical and Mathematical Reasoning to teach the conceptual and theoretical tools used in reasoning and problem solving, such as statistics, probability theory, mathematics, logic, and decision theory.
- Ethical Reasoning to teach how to reason about moral and political beliefs and practices, and how to deliberate and assess claims about ethical issues.
- Science of Living Systems to introduce concepts, facts, and theories relevant to living systems.
- Science of the Physical Universe to introduce key concepts, facts, and theories about the physical universe that equip students to better understand our world and the universe.
- Societies of the World to examine one or more societies outside the United States.
- The United States in the World to examine American social, political, legal, cultural, and/or economic institutions, practices, and behavior, from contemporary, historical, and/or analytical perspectives.

In addition to 8 half courses in 8 different categories (*one of which must also engage substantially with the study of the past*), all Harvard students must complete a required course in Expository Writing during their first year and must fulfill a language requirement before the beginning of the third year. General Education, Expository Writing, and the language requirement combined require 9-11 half-courses, or about 30-35% of a student's overall program.

Johns Hopkins

Students are admitted to the university as a whole, with the exception of the biomedical engineering program which requires a separate application. All JHU students must complete 2 writing intensive courses (*marked with a W in the catalog*). All students are required to earn at least 30 credits in academic areas outside their majors. The academic areas in the Hopkins curriculum are humanities (H), natural sciences (N), social and behavioral sciences (S), quantitative and mathematical sciences (Q), and engineering (E).

The Business School does not enroll freshmen; students must have 60 credits before applying. See http://carey.jhu.edu/our_programs/ugprogram/bs_business/index.html. The School of Nursing seems to have similar constraints http://nursing.jhu.edu/academics/academic_programs/bacc/clinical_residency/

Rice

Rice students must complete COMM 103 Academic Writing and Argumentation, a one-semester course carrying three hours degree credits, and a two course, zero credit Lifetime Physical Activity Program (LPAP) requirement. They must also satisfy a distribution requirement of four courses in each of three groups, and in at least two departments in each group.

"Group I—These courses have one or more of the following goals: They develop students' critical and aesthetic understanding of texts and the arts; they lead students to the analytical examination of ideas and values; they introduce students to the variety of approaches and methods with which different disciplines approach intellectual problems; and they engage students with works of culture that have intellectual importance by virtue of the ideas they express, their historical influence, their mode of expression, or their critical engagement with established cultural assumptions and traditions.

Group II—Three types of courses fulfill this requirement. The first are introductory courses that address the problems, methodologies, and substance of different disciplines in the social sciences. The second are departmental courses that draw on at least two or more disciplines in the social sciences or that cover topics of central importance to a social science discipline. The third are interdisciplinary courses team-taught by faculty from two or more disciplines.

Group III—These courses provide explicit exposure to the scientific method or to theorem development, develop analytical thinking skills and emphasize quantitative analysis, and expose students to subject matter in the various disciplines of science and engineering."

We also found the program at Rice described as a framework for requirements that appears to focus on skills with a menu system of classes. There are three types of university-wide requirements: Freshman Seminar, Ways of Knowing courses, and Required Capacities.

Ways of Knowing

Approaches to the Past (2 courses)

Encounters with Texts and the Arts (2 courses)

Interpreting Human Behavior: Individual, Social, and Cultural (2 courses)

Engaging Science and Technology (4 courses, two of which must be designated for scientific reasoning)

Required Capacities

Writing- Students must complete four courses designated as writing intensive.

Quantitative Reasoning- Students must complete one course designated as intensive in quantitative reasoning.

Oral Discussion and Presentation- Students must complete one course designated as intensive in oral discussion and presentation.

Rochester

Arts, Sciences and Engineering students share requirements for a primary writing requirement, normally WRT 105, and a cluster (*an authorized set of three related courses*), or a minor or major, in each of the other areas (*other than the major area in humanities and arts; social sciences; natural sciences, mathematics and engineering*)

The School of Nursing and the Business school apparently don't offer undergraduate degrees comparable to those at CWRU.

Vanderbilt

Vanderbilt admits students to individual schools within the university and does not have a common core. All undergraduate students participate in Vanderbilt Visions during freshman year, but this doesn't appear to carry academic credit.

Their CAS GER can be found at <http://www.vanderbilt.edu/cas/academics/axle/index.php>. It contains a First Year Common Experience, a Writing Requirement plus two courses marked as W (*contains writing*) and a 13 course Liberal Arts Requirement.

Vanderbilt's School of Engineering has a 6 course Liberal Arts Core. "In order to provide the elements of a general education considered necessary for responsible practice as an educated engineer, the School of Engineering requires each student to complete at least 18 hours in the Liberal Arts Core. The Liberal Arts Core will be selected from courses in the five distribution categories designated in the AXLE Curriculum.

Washington University

Students are admitted to the university rather than separate schools. Students must take "core skills" (*writing, quantitative*), but there are choices, i.e., GER's with menus. The choices depend upon the school. The University College of Arts & Sciences GER can be found at <http://ucollege.wustl.edu/programs/undergraduate/generaled>

7. GOVERNANCE OF THE COMMON CORE

Governance of the common core at the institutions we studied is reviewed below. Although our Task Force recognized this as a critical issue, it was particularly difficult to assess given the subtleties of university politics, the differences between formal policies and how things function in practice, and the limitations on publicly accessible materials.

Carnegie Mellon University

Students are admitted to individual schools and it appears that each school governs its own GER. The Faculty Senate's web page is not accessible to the general public and we were not able to determine whether there is any overall faculty oversight of school requirements.

Dartmouth

Dartmouth has a Committee on Instruction that apparently approves courses for inclusion in the common core.

Duke

Each school governs their own GER but Duke is considering greater coordination. They are currently discussing administrative reporting lines, with a new structure that will be slowly rolled out this year to provide a more centralized, common UG curriculum. The Provost does not apparently want another thorough curriculum review right now; there was a review in 2000.

Emory

Emory does not have an engineering program. Their business and nursing programs require that students begin their studies in the College of Arts and Sciences although the professional schools do have ‘suggestions’ (*business*) or ‘requirements’ (*nursing*) for the general education students obtain during their first two years. Details are available at http://www.goizueta.emory.edu/degree/undergra_adm_gened.html and <http://www.nursing.emory.edu/admission/undergraduate/bsn.html>.

Johns Hopkins

John’s Hopkins has an Academic Council which appears to have overall authority for academic requirements for the H&SS, science and engineering programs on the Homewood campus. (*The professional schools at JHU are physically separate.*) From <http://krieger.jhu.edu/bin/i/r/KSAS%20dean%20profile%20091210.pdf>

“The tradition of faculty governance is firmly established at Johns Hopkins University and KSAS. A 12-member Academic Council, elected from the schools of Arts and Sciences and Engineering, serves as the primary mechanism for faculty governance on the Homewood campus, with responsibility for academic decisions including faculty appointments, promotion, and tenure, and program review; the Dean is an ex officio member of the Academic Council. Within the departments, the faculty bears the primary responsibility for the content and rigor of academic majors, the development of individual courses, and the academic advising of students who have declared majors.

From <http://sites.jhu.edu/council/preschrg>

Academic Council Procedures Manual

Presidential Charge to the Homewood Academic Council

The mission of the Academic Council is to preserve and enhance the academic excellence of the Krieger School of Arts and Sciences and the Whiting School of Engineering. The Academic Council is charged to pursue this mission, whether directly or through its duly appointed subcommittees and designees, in ways including but not limited to the following:

Second, the Academic Council will review all proposals for new degrees and new majors and minors in the Krieger and Whiting Schools, and will consider all matters of curricular

and instructional policy that, in the Council's judgment, have a significant bearing on the quality of the Schools' academic programs.

Third, the Academic Council will conduct periodic reviews of all departments in the Krieger and Whiting Schools; at the Council's discretion, it will also review centers, institutes, and administrative units that in its judgment have a significant influence on the quality of the Schools' academic programs.

Fourth, the Academic Council will advise the Deans, the Provost and the President on academically important questions of institutional policy and strategy.

Academic Affairs Committee

Review and provide recommendations to Council on proposals from the following Council “standing” committees: KSAS/WSE Curriculum Committee, Graduate Board, Whiting School Graduate Committee, as well as the Advanced Academic Programs (AAP) Academic Committee.

Rice

Rice’s Committee on Undergraduate Curriculum (CUC) <http://www.cuc.rice.edu/> “oversees the evolution of the undergraduate curriculum, ensuring it meets University goals, is academically sound, and is responsible to undergraduate educational needs. In pursuit of this mission, the Committee regularly communicates with and advises the Faculty Senate regarding curricular issues arising from the Committee's work or brought to its attention.

The CUC's specific responsibilities include the following:

- Review proposed changes to Rice's general undergraduate curriculum, and present its findings and recommendations to the Faculty Senate for final approval. Such matters include: proposals for new majors, proposals for new minors, revisions of existing majors and minors, and changes to the distribution course system.
- Initiate study of issues regarding a) improvement of the general undergraduate curriculum or b) specific undergraduate curriculum concerns. These issues may arise from the CUC's work or may be brought to its attention by the Faculty Senate.
- Communicate with and advise the Dean of Undergraduates and the Provost (who serve as ex officio members) on proposals that might affect the undergraduate curriculum.”

Rochester

At Rochester, Arts & Sciences and Engineering are two schools within the same College - <http://www.rochester.edu/college/> . The Faculty Senate appears to have broad powers over curriculum, as can be seen from <http://www.rochester.edu/Faculty/senate/> and

http://www.rochester.edu/provost/FacultyHandbook/Faculty_Handbook_07082008.pdf

"There shall be established . . . a University-wide Faculty Senate . . . to consider the state of the University, . . . to make recommendations for its academic development . . . to inquire into any matter . . . that has implications for the academic function and welfare of the University and to make recommendations concerning such matters . . . and to be a channel of communications between and among the various faculties and between the collective faculties and the President and the Provost of the University."

Vanderbilt

Vanderbilt's Faculty Senate web site URL is

<http://www.vanderbilt.edu/facultysenate/>.

The Faculty Senate appears to have broad authority, subject to veto from the Chancellor, but it's not clear if the Senate can do more than make recommendations to individual faculties concerning academic programs. From

<http://www.vanderbilt.edu/facultysenate/arttwo.htm>

Jurisdiction, Duties, and Power

- c. The Senate shall have the power to review and evaluate the educational policies and practices of the University and may make recommendations concerning them to any individual, Faculty, or other group within the University. It may provide for appropriate Faculty discussion of any educational policy or practice. It may advise and consult with the chief administrative officers and inform them of Faculty opinions about such matters. It shall facilitate and encourage communication within the University, among the several Schools, and reciprocally among Faculty, students, and administration. It is each Faculty's responsibility to devise internal procedures for facilitating communication between that Faculty and its representatives in the Senate. [1971]
- f. Senate actions which require affirmative implementation by the Chancellor shall be either accepted or rejected. The Senate may request the Chancellor to call meetings of the Faculty Assembly and take such other steps as it deems wise in carrying out its duties of providing for discussion and furthering communication as described in section 3c above. [1982]

Washington University

Washington University has a Faculty Senate and a Faculty Council. See <http://facultysenate.wustl.edu/> and <http://www.wustl.edu/policies/council.html>. The Council's authority includes the following items.

- a. At its discretion, it shall reappraise present University policies relating to matters of University-wide concern and to academic personnel and make such recommendations as it deems advisable to the executive vice chancellor or one of

the vice chancellors, who shall inform the Senate Council of the actions taken with respect to such recommendations.

- b. All changes in existing policies or the promulgation of new policies relating to matters of University-wide concern and to academic personnel shall be regularly presented to it by the executive vice chancellor, one of the vice chancellors, or any other representative appointed by the chancellor for its consideration, and if the Council so desires, for its recommendations. If the Council disapproves a policy proposed by the executive vice chancellor, one of the vice chancellors, or any other representative appointed by the chancellor, a written statement of the grounds of its disapproval will be transmitted to the chancellor and shall be considered by him or her or the Board, if necessary, before the policy is promulgated.
- c. At its discretion, it may consider and report its position to the executive vice chancellor, one of the vice chancellors, or any other representative appointed by the chancellor upon any other matters affecting the welfare of the University as a whole (**including controversies that may arise between schools or colleges**) presented to it by the chancellor, the executive vice chancellor, or one of the vice chancellors, the dean or director of a school or college, the council of a school or college, or any individual member of the Senate Council.

8. ADVANTAGES AND DISADVANTAGES OF A INSTITUTION-WIDE COMMON CORE

We list below the advantages and disadvantages of an institution-wide common core that have come to the attention of our Task Force. Some of the issues listed below appear as both advantages and disadvantages. Members of the university community will evaluate each depending on his or her individual perspective, the nature of the requirements, and how they are implemented.

ADVANTAGES

- a. A common core can help create a distinctive identity for an institution. This may have implications (*potentially negative as well as positive*) in recruiting students, faculty and staff.
- b. A common core can be designed to support a university's institution-wide strategic plan.
- c. A common core allows an institution to distinguish its graduates as having all achieved a set of outcomes that go beyond those peculiar to a specific major or profession. A list of such skills would duplicate the earlier list of requirements for a common core and could include:
 - i. critical reasoning, responding constructively to challenges

- ii. writing and verbal communication
 - iii. breadth in disciplines other than the major, such as the arts, humanities, social sciences, physical sciences, mathematics, engineering, and health
 - iv. ethical decision making
 - v. global/cultural awareness
 - vi. civic engagement and leadership skills
 - vii. information literacy
- d. A common set of requirements provides a common experience for students, particularly for freshmen, even when those requirements allow students to choose from menus of options.
 - e. Depending on its size and complexity, a common set of requirements may simplify advising and course choice for students who are uncertain of their majors.
 - f. A common core can be a resource-efficient way to deliver general education.
 - g. A common set of requirements makes it easier for students to select and/or change their major and is consistent with a practice in which students are admitted to the university rather than to specific schools.
 - h. A common set of requirements can make it simpler for students to pursue multiple majors and/or minors, as long as these requirements are not so extensive that they limit students' ability to take the additional courses they will need.
 - i. A common core can help an institution satisfy external institutional accreditation constraints.

DISADVANTAGES

- a. Faculty within a given school may know, or believe they know, what's best for their own students. Having to conform to a common core may be a constraint against delivering an optimum curriculum.
- b. Requiring a certain number of courses for a common core reduces students' flexibility in choosing courses that match their personal perceived interests.
- c. Constraining choice limits a student's ability to explore various majors.
- d. A mandate for certain courses or activities makes it more difficult for students to pursue additional majors, minors or activities that interest them.
- e. A common core can require significant faculty, staff and financial resources for courses and activities included in the common core. This may diminish resources available for other purposes such as courses in the majors and may lead to resentment if resources are shifted from one part of an institution to another.
- f. A common core lessens the distinctiveness of different schools within an institution.

- g. A common core that includes institutionally distinctive requirements complicates transfer into CWRU, semester abroad programs, and articulation agreements with other schools.
- h. A common core requires that governance and funding structures be established and maintained.

APPENDICES

Appendix I: Complete Charge to the Task Force

August 18, 2010

Phase 0 *ad hoc* Task Force

Joint Provost/Faculty Senate Process on a
University Common Undergraduate Core Curriculum

Purpose: Gather and organize information that can be used to inform a faculty discussion regarding the value of establishing a University Common Undergraduate Core Curriculum at Case Western Reserve University.

Charge: To facilitate the consideration of instituting a University Common Undergraduate Core Curriculum, the *ad hoc* Task Force is charged to deliver to the Faculty Senate and Provost a report containing the following:

- An analysis of the philosophy underlying the use of a common undergraduate core curriculum within colleges and universities, including a discussion of the advantages and disadvantages of utilizing a common undergraduate core for undergraduate education
- An examination of the practices in use at other institutions for the governance and management of a common undergraduate core curriculum

Composition of the *ad hoc* Task Force:

- Two representatives of the Faculty Senate (e.g., from the Executive Committee and/or FSCUE)
- One representative of the Office of the Provost
- One representative from the deans office (e.g., an associate dean) of each of the four undergraduate schools (College of Arts and Sciences, Case School of Engineering, Frances Payne Bolton School of Nursing, Weatherhead School of Management)

Timetable: The report of the *ad hoc* Task Force will be due midway through the Fall 2010 semester. (October 1, 2010).

Subsequent Steps Anticipated for the Faculty Senate:

- Plan for engaging the broad university community in discussions on a common core curriculum

If interest develops in establishing a common core curriculum:

- Develop a process by which CWRU could formulate a philosophy statement for a common undergraduate core for possible adoption by the faculty
- Establish a detailed plan (and timetable) for formulating a common undergraduate core and processes for governance of the core

The following resolution was approved by the Faculty Senate Executive Committee and endorsed by the Faculty Senate in the spring of 2010. It laid the groundwork for the formation of the Phase I Task Force as described above.

1. RESOLUTION TO ESTABLISH A JOINT PROVOST/FACULTY SENATE *ad hoc* COMMITTEE ON A UNIVERSITY COMMON UNDERGRADUATE CORE CURRICULUM

Whereas, SAGES has served as the core curriculum for CWRU undergraduate students since 2005;

Whereas, the joint Provost/Faculty Senate *ad hoc* Committee on SAGES Review has indicated the desirability of a common General Education Requirement and provided a set of key recommendations about possible modifications to the SAGES curriculum;

Whereas, the Case School of Engineering has proposed modifications to the SAGES curriculum for its students;

Whereas, the Faculty Senate Committee on Undergraduate Education and the Faculty Senate Executive Committee have reviewed the SAGES implementation process as part of its consideration of the Case School of Engineering proposal; therefore

Resolved, the Faculty Senate Executive Committee instructs the chair of the Faculty Senate to collaborate with the provost to charge and empanel the joint Provost/Faculty Senate *ad hoc* Committee on a University Common Undergraduate Core Curriculum. Said *ad hoc* committee shall devise and guide a process facilitated by the provost and the deans of the four constituent faculties making up the Undergraduate Program Faculty, and by the leadership of the Faculty Senate, with active participation from the faculty of the four UPF constituent faculties and the additional departments making up the Undergraduate Program Faculty, to first assess the value of and make recommendations regarding the establishment of a University Common Undergraduate Core Curriculum. If so recommended, subject to approval of the Faculty Senate, said *ad hoc* committee shall continue to guide in similar fashion the development of a University Common Undergraduate Core Curriculum, including curriculum content and policies about ongoing assessment and governance, to be submitted to the four constituent

faculties making up the Undergraduate Program Faculty for their recommendations to the Faculty Senate and the president, and to the Faculty Senate for its recommendation to the president and thence to the Board of Trustees. The status of the process shall be reported to and discussed with the executive and/or curriculum committees of the four UPF constituent faculties, university leadership, and Faculty Senate at least monthly throughout summer and fall, 2010. The goal is to obtain endorsement of a University Common Undergraduate Core Curriculum in January 2011 by each of the four constituent faculties that make up the Undergraduate Program Faculty and by the Faculty Senate by February 2011. It is recognized that the timeline for this process is aggressive. The intention of the tight timeline is to provide impetus to the process for achieving the stated objectives in a reasonable time frame and is not intended to restrict discussion or provide any undue constraints on the process.

Appendix II: Details of curricula, governance *et al* at the institutions we studied

The material in this appendix expands on the postings in the body of the report for Carnegie-Mellon, Dartmouth, Duke, Emory, Johns Hopkins, Rice, Rochester, Vanderbilt and Washington University.

Carnegie Mellon University

Students apply to specific schools at CMU, but may select up to five different schools to include on their application - http://www.cmu.edu/admission/forms/2011/apply_freshman.pdf

From <http://www.studentaffairs.cmu.edu/theword/> : *To frame the university's philosophy on and commitment to education and student life we have selected the following passages from the [Carnegie Mellon University 2008 Strategic Plan](#):*

The distinct strength of Carnegie Mellon's approach to education is the depth and rigor of discipline-specific study, which drives and informs the breadth of its curriculum. Our approach of deep exploration in a field, combined with problem-solving, real-world relevance, encourages students to collaborate across disciplines, to challenge their own perspectives and ideals, and to learn to value the viewpoints and contributions of others.

This combination of depth in learning and breadth in collaboration fosters the development of critical thinking, curiosity, creativity, personal integrity, social responsibility, and professional ethics.

With complementary intensity, students embrace opportunities that occur beyond the classroom. The talent of our student body will continue (sic.) to be the cornerstone of a campus community rich with opportunity for active involvement outside the classroom, both socially and in the service to others.

GER's at CMU

Carnegie Institute of Technology engineering students take as a breadth requirement one humanistic studies course, one cognitions and institutions course, and one writing course. They also have a depth requirement of three courses in Humanities and Social Sciences or fine arts. The detailed GER can be found at http://www.cit.cmu.edu/current_students/services/general_education.html and <http://coursecatalog.web.cmu.edu/carnegieinstituteoftechnology/>. The engineering Gen Ed requirements are that students must complete a minimum of 72 units (eight courses) of General Education requirements, that fall into three categories: breadth, depth and non-technical electives. Humanistic studies (cultural analysis) -9 units; Cognitions and Institutions -9 units; Writing/Expression -9 units; Interpretation and argument – 9 units; depth in humanities, social sciences or fine arts – 27 units; and non-technical electives – 18 units. Note that CMU uses a unit system, where 9 units is the equivalent of 3 credit hours.

Mellon Institute of Science majors take a designated writing course and three distribution courses, one from each of three categories of humanities and social science courses. They must also take 4 elective courses in humanities and social science, fine arts or business. See <http://coursecatalog.web.cmu.edu/melloncollegeofscience/> for details, including lists of courses which satisfy the various requirements.

H&SS students have a general education program of 14 courses broken down into five categories plus a freshman seminar. See <http://www.hss.cmu.edu/gened/requirements.html> and <http://coursecatalog.web.cmu.edu/collegeofhumanitiesandsocialsciences/> for details. There is a list of courses that satisfy the following GenEd categories: Communicating, Creating, Deciding, Modeling: Mathematics, Modeling: Natural Sciences, Modeling: Other, and Reflecting.

We did not find undergraduate degree requirements for the School of Business <http://coursecatalog.web.cmu.edu/tepper/> or the College of Fine Arts <http://coursecatalog.web.cmu.edu/collegeoffinearts/> .

Complete justification for the CMU-CIT GER.

"From its earliest days, Carnegie Institute of Technology (CIT) has considered undergraduate education to be the key element in the development of future leaders. In this regard, CIT has adopted a plan for education that is designed to equip students with the capacity to learn and to continue the process of self-education throughout their lives. The present curriculum incorporates this philosophy by providing the opportunity for both breadth in a number of engineering, science, humanities and fine arts areas as well as depth in a major area of concentration. To achieve these goals, our flexible curriculum has been designed to allow students to customize their program to suit their needs and to help each student acquire:

- A thorough and integrated understanding of fundamental knowledge in fields of a students' major interest and the ability to use this knowledge;
- Competence in the orderly way of thinking, which professionals and scientists have always used in reaching sound, creative conclusions, with the goal that after graduation the student can, by such thinking, reach decisions both as a professional and as a citizen;
- An ability to learn independently with scholarly orderliness, so that after graduation the student will be able to grow in wisdom and keep abreast of the changing knowledge and problems of the profession and the society in which he or she participates;
- The philosophical outlook, breadth of knowledge, and sense of values which will increase the student's understanding and enjoyment of life and enable each student to recognize and deal effectively with the human, economic, ethical and social aspects of professional problems; and
- The ability to communicate ideas to others in a comprehensive and understandable manner."

Dartmouth

Philosophy

“A good curriculum will always remain at the heart of Dartmouth’s liberal education. To remain vibrant, however, a curriculum must experiment and evolve. In a world that is constantly changing, teachers must grapple with how these changes affect their students’ needs and the requirements of education. In the most thorough revision of graduation requirements in almost three-quarters of a century, Dartmouth’s Faculty of Arts and Sciences voted in the Spring of 1992 to significantly alter and sharpen distributive and general education requirements, and to intensify the culminating experience within each major. These changes were made with a view to making Dartmouth’s graduates even better prepared for the challenges and opportunities of the twenty-first century. The principles of a liberal arts education, at Dartmouth and elsewhere, have been that a student should complete some concentrated course of study --- a major field --- in which they will display some real depth and mastery. At the same time, a liberally educated person is one who has been exposed to a wide range of fields and insights. The modifications in Dartmouth’s degree requirement aim at enhancing both the *depth* and the *breadth* objectives of a liberal arts education. An ongoing policy of creating and sustaining a high faculty/student ratio is one way Dartmouth supports this. This policy is at the heart of the curriculum reform. The changes that were implemented require students to spend more time working with faculty on a range of academic activities --- from academic planning through additional small group classes and one-to-one sessions. These changes recognize the complexity of the world in which Dartmouth students will live and work after graduation, and in so doing, reflect the greater breadth and depth of knowledge as it exists today.”

Requirements

The requirements seem to be a menu for the most part but two writing classes (Writing 5 and a First Year Seminar) seem defined.

Other requirements

Foreign Language (3 courses)

Physical Education (3 credits)

Distributive Requirements (course each)

Art (ART)

Literature (LIT)

Systems and Traditions of Thought, Meaning and Value (TMV)

International or comparative study (INT)

Social analysis (SOC)

Social analysis (SOC)

Quantitative and deductive science (QDS)

Natural and physical science (SCI/SLA)

Natural and physical science (SCI/SLA)

Technology or applied science (TAS/TLA)
(at least one of the SCI/SLA or TAS/TLA courses must have a laboratory, experimental or field component)
World Culture:
Western Cultures (W)
Non-Western Cultures (NW)
Culture and Identity (CI)

Duke

A senior administrator at Duke provided additional insight into Duke's undergraduate programs.

1. Is there an institution-wide philosophy for the education of undergraduate students that might or clearly does impact their GER(s)?

“Yes and no; it's in transition and depends on how you look at it.” Undergraduate students are admitted into either the Pratt School of Engineering (PSE, 20% of students) or the Trinity College of Arts and Sciences (TCAS, 80% of students). Each school has their own GER. Two other schools also offer UG degrees through TCAS: environmental studies <http://www.nicholas.duke.edu/programs/>, and the School of Public Policy. They also have seven cross-school, interdisciplinary institutes: one of them offers an undergraduate degree in neuroscience and another offers a certificate in global health (which was described as somewhere between a major and a minor).

Duke's Trinity College of Arts and Sciences did a thorough undergraduate curriculum review in 2004 and issued a report of their “Curriculum 2000”, which can be found on the web at <http://dukespace.lib.duke.edu/dspace/handle/10161/1507>. This report covers many of the issues that have been raised at CWRU. Some of its major conclusions are that the requirements should be simplified and lessened. Duke is currently reorganizing and probably moving to a university curriculum for undergraduates. However, they are not talking about moving to a general admission system, i.e. students will still be admitted to separate schools.

2. Are there requirements that all students must satisfy?

Yes, but it is coincidental, not planned.

3. Are these requirements described in terms of courses, menus of course, departments, skills, etc?

They have a matrix model with categories and different ways of meeting them (areas of knowledge vs. ways of knowing).

4. Who governs any common elements of students' education?

Each school governs their own GER. They are looking at greater coordination. They are currently discussing administrative reporting lines, with a new structure that will be slowly rolled out this year to provide a more centralized, common UG curriculum. The Provost does not apparently want another thorough curriculum review right now.

5. Other observations

He said that students are pushing for a reduction in GER to allow greater flexibility.

Emory

A list of the schools and colleges within Emory can be found at <http://www.emory.edu/home/academics/schools.html#1> . This web site also provides simple access to details about the undergraduate program at each school. An overview of the Emory College requirements can be found at http://college.emory.edu/home/academic/general_education/ .

Johns Hopkins

All JHU students must complete two writing intensive sources. Students pursuing a BA must complete an additional 2 writing intensive courses. Details are provided at http://www.jhu.edu/design/oliver/academic_manual/BA_BS.html.

The JHU College of Arts & Sciences discusses general education requirements in the context of double majors as follows. "Consider the rigor of just one undergraduate major at Johns Hopkins. Now multiply that by two. Though the path to pursuing a double major in the Zanvyl Krieger School of Arts and Sciences is relatively obstacle-free—thanks to an absence of general-education requirements and the fact that cross-listed courses are double-counted—the resulting course load is challenging, to say the least. "We let students have considerable independence and latitude in creating their own curriculum, [but] doing a double major here is not easy," admits Paula Burger, vice provost and dean of undergraduate education. "We have a lot of students, though, who are engaged in their work and have multiple interests, so why choose just one major when you don't have to?"

Students are apparently admitted to the university with the exception of Biomedical Engineering. http://apply.jhu.edu/apply/faq_all.html
Students wishing to enroll in the biomedical engineering (BME) major must indicate BME as their first-choice major on their application. Students are admitted specifically into the BME major, based on evaluation of credentials and space available. Students can be admitted to the university without acceptance to the BME major. No separate application is required.

The Zanvyl Krieger School of Arts and Sciences
<http://krieger.jhu.edu/academics/index.html> .

Degree requirements are posted at
http://www.jhu.edu/design/oliver/academic_manual/BA_BS.html .

The Whiting School of Engineering <http://krieger.jhu.edu/academics/index.html> with
degree requirements posted at
<http://engineering.jhu.edu/general-engineering/engineering-requirements.html>

The Carey Business School
http://webapps.jhu.edu/jhuniverse/academics/schools/carey_business_school/

The Johns Hopkins University School of Nursing
http://webapps.jhu.edu/jhuniverse/academics/schools/school_of_nursing/

Faculty governance is described at <http://sites.jhu.edu/council/> &
<http://sites.jhu.edu/council/preschrg>.

Academic Council Procedures Manual

Presidential Charge to the Homewood Academic Council

The mission of the Academic Council is to preserve and enhance the academic excellence of the Krieger School of Arts and Sciences and the Whiting School of Engineering. The Academic Council is charged to pursue this mission, whether directly or through its duly appointed subcommittees and designees, in ways including but not limited to the following:

Second, the Academic Council will review all proposals for new degrees and new majors and minors in the Krieger and Whiting Schools, and will consider all matters of curricular and instructional policy that, in the Council's judgment, have a significant bearing on the quality of the Schools' academic programs.

Third, the Academic Council will conduct periodic reviews of all departments in the Krieger and Whiting Schools; at the Council's discretion, it will also review centers, institutes, and administrative units that in its judgment, have a significant influence on the quality of the Schools' academic programs.

Fourth, the Academic Council will advise the Deans, the Provost and the President on academically important questions of institutional policy and strategy.

Academic Affairs

Review and provide recommendations to Council on proposals from the following Council "standing" committees: KSAS/WSE Curriculum Committee, Graduate Board,

Whiting School Graduate Committee, as well as the Advanced Academic Programs (AAP) Academic Committee.

From <http://krieger.jhu.edu/bin/i/r/KSAS%20dean%20profile%20091210.pdf>

The tradition of faculty governance is firmly established at Johns Hopkins University and KSAS. A 12-member Academic Council, elected from the schools of Arts and Sciences and Engineering, serves as the primary mechanism for faculty governance on the Homewood campus, with responsibility for academic decisions including faculty appointments, promotion, and tenure, and program review; the Dean is an *ex officio* member of the Academic Council. Within the departments, the faculty bears the primary responsibility for the content and rigor of academic majors, the development of individual courses, and the academic advising of students who have declared majors.

The undergraduate program in business is explained at http://carey.jhu.edu/our_programs/ugprogram/bs_business/index.html

For admission to the program, students must have completed 60 transferable college-level credits from a regionally accredited college or university.

Rice

Philosophy

“We must provide a holistic undergraduate experience that equips our students with the knowledge, the skills, and the values to make a distinctive impact in the world. This requires that we reexamine the undergraduate curriculum, as well as focus on enhanced research opportunities, training in communication skills, and leadership development for our students

The faculty at Rice has apparently been considering revisions in their GER. From a Vision for the Second Century: “We must provide a holistic undergraduate experience that equips our students with the knowledge, the skills, and the values to make a distinctive impact in the world. This requires that we reexamine the undergraduate curriculum, as well as focus on enhanced research opportunities, training in communication skills, and leadership development for our students.”

The first stage of the curriculum review process—slated to begin in spring 2006—asks the faculty to articulate more clearly its goals for the undergraduate program, building on what we have learned from the Call to Conversation. What is it that we want our students to be when they leave that they are not when they arrive at Rice? What knowledge and capabilities do we expect them to have? After articulating these goals with greater specificity, the second stage of the process will assess how well our current curriculum meets the defined objectives and identifies those areas of the curriculum that require additional resources and attention. The third and final stage of the process will focus on the development and implementation of detailed recommendations to assure our

curriculum effectively evolves to fulfill the goals set by the faculty. Although this process will be led and decided by the faculty, it must be informed by the perspectives and experiences of the broader Rice community, including current and former students.

From http://www.rice.edu/catalog/2010_2011/PDF/07_UndergradInfo.pdf

Excerpts from Degree Requirements for All Bachelor's Degrees

Students are responsible for making certain that their plan of study meets all degree and major requirements. To graduate from Rice University, all students must:

- Satisfy the composition requirement (see below)
- Satisfy the Lifetime Physical Activity Program (LPAP) requirement (see below)
- Complete courses to satisfy the distribution requirements (see below)

To satisfy the composition requirement, students must either pass the composition examination or successfully complete COMM 103 Academic Writing and Argumentation, a one-semester course carrying three hours degree credit.

To satisfy the LPAP requirement, students must complete two different noncredit courses in LPAP.

Distribution Requirements

Each student is required to complete at least 12 semester hours of designated distribution courses in each of Groups I, II, and III. The 12 hours in each group must include courses in at least two departments in that group. Divisional or interdisciplinary designations, e.g., HUMA or NSCI, count as departments for this purpose. Interdivisional courses approved for distribution credit may count toward the 12 semester hours in any relevant group; however, students may not count any one such course toward the 12 required hours in more than one group and may count no more than one such course toward the 12 required hours in any one group.

Students must complete the distribution requirements in each group by taking courses that are designated as a distribution course at the time of course registration, as published in that semester's Course Offerings. Courses taken outside of Rice and transferred in can be used to satisfy distribution requirements, assuming they are on the list of approved and designated distribution courses at the time they were taken. Completed courses taken prior to matriculation are subject to the list of designated distribution courses at the time of matriculation.

The distribution system presupposes that every Rice student should receive a broad education along with training in an academic specialty. This goal is achieved by courses that are broad based, accessible to nonmajors, and representative of the knowledge, intellectual skills, and habits of thought that are most characteristic of a discipline or of inquiry across disciplines.

Group I—These courses have one or more of the following goals: They develop students' critical and aesthetic understanding of texts and the arts; they lead students to the analytical examination of ideas and values; they introduce students to the variety of approaches and methods with which different disciplines approach intellectual problems; and they engage students with works of culture that have intellectual importance by

virtue of the ideas they express, their historical influence, their mode of expression, or their critical engagement with established cultural assumptions and traditions.

Group II—Three types of courses fulfill this requirement. The first are introductory courses that address the problems, methodologies, and substance of different disciplines in the social sciences. The second are departmental courses that draw on at least two or more disciplines in the social sciences or that cover topics of central importance to a social science discipline. The third are interdisciplinary courses team-taught by faculty from two or more disciplines.

Group III—These courses provide explicit exposure to the scientific method or to theorem development, develop analytical thinking skills and emphasize quantitative analysis, and expose students to subject matter in the various disciplines of science and engineering.

The framework for requirements appears to focus on skills with a menu of classes that will satisfy these. There are three types of university-wide requirements: Freshman Seminar, Ways of Knowing courses, and Required Capacities.

Ways of Knowing

Approaches to the Past (2 courses)

Encounters with Texts and the Arts (2 courses)

Interpreting Human Behavior: Individual, Social, and Cultural (2 courses)

Engaging Science and Technology (4 courses, two of which must be designated for scientific reasoning)

Required Capacities

Writing- Students must complete four courses designated as writing intensive.

Quantitative Reasoning- Students must complete one course designated as intensive in quantitative reasoning.

Oral Discussion and Presentation- Students must complete one course designated as intensive in oral discussion and presentation.

Governance: <http://www.cuc.rice.edu/>

The Committee on Undergraduate Curriculum (CUC) oversees the evolution of the undergraduate curriculum, ensuring it meets University goals, is academically sound, and is responsible to undergraduate educational needs. In pursuit of this mission, the Committee regularly communicates with and advises the Faculty Senate regarding curricular issues arising from the Committee's work or brought to its attention.

The CUC's specific responsibilities include the following:

1. Review proposed changes to Rice's general undergraduate curriculum, and present its findings and recommendations to the Faculty Senate for final approval. Such matters include: proposals for new majors, proposals for new minors,

- revisions of existing majors and minors, and changes to the distribution course system.
2. Approve changes to the undergraduate curriculum in areas where the Faculty Senate has delegated this power to the CUC. This includes approval of individual area majors (in cooperation with the Office of Academic Advising and the chairs of the relevant departments).
 3. Advise, review, or approve other matters as delegated by the Faculty Senate and agreed to by the CUC.
 4. Initiate study of issues regarding a) improvement of the general undergraduate curriculum or b) specific undergraduate curriculum concerns. These issues may arise from the CUC's work or may be brought to its attention by the Faculty Senate.
 5. Communicate with and advise the Dean of Undergraduates and the Provost (who serve as ex officio members) on proposals that might affect the undergraduate curriculum.
 6. Provide a written annual report to the Faculty Senate and to the President of Rice University on the CUC's activities
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Rochester

From <http://www.rochester.edu/academics/>

‘Build Your Own’

Rochester recognizes that no two students are alike, so your college education can't follow a "general education" path. That is why the Rochester Curriculum—unique in higher education—has no required subjects. You build your own path and learn what you love.

Students in Arts, Sciences, and Engineering pursue a major in one of the three great divisions—humanities, social sciences, and natural sciences—and complete a cluster of three or more related courses in the two areas outside their major. The result is an education that reflects students' priorities.

Detailed program requirements are posted at <http://www.rochester.edu/college/academics/undergraduate.html>.

The ‘Rochester Curriculum’ is described at <http://www.rochester.edu/college/academics/curriculum.html>

The School of Arts and Sciences describes its requirements at <http://www.rochester.edu/bulletin/academics/requirements/sas/>

The Edmund A. Hajim School of Engineering and Applied Sciences describes its requirements at <http://www.rochester.edu/bulletin/academics/requirements/hajim/> .

The School of Nursing <http://www.son.rochester.edu/> doesn't seem to offer an undergraduate degree similar to that of CWRU, starting from the freshman year. See page 29 of <http://www.son.rochester.edu/pdf/studenthandbook.pdf>

The Simon School of Business doesn't grant undergraduate degrees <http://www.simon.rochester.edu/programs/index.aspx> .

The Eastman School of Music is described at <http://www.esm.rochester.edu/> and http://www.esm.rochester.edu/degrees/ba_bs.php .

Faculty Senate <http://www.rochester.edu/Faculty/senate/> and http://www.rochester.edu/provost/FacultyHandbook/Faculty_Handbook_07082008.pdf

"There shall be established . . . a University-wide Faculty Senate . . . to consider the state of the University, . . . to make recommendations for its academic development . . . to inquire into any matter . . . that has implications for the academic function and welfare of the University and to make recommendations concerning such matters . . . and to be a channel of communications between and among the various faculties and between the collective faculties and the President and the Provost of the University."

Vanderbilt

The degree requirements for the College of Arts and Sciences are described at <http://www.vanderbilt.edu/cas/academics/axle/index.php>

The AXLE curriculum consists of four parts: the First Year Common Experience, the Writing Requirement, the Liberal Arts Requirement, and the Major. AP credit cannot be used to fulfill AXLE curriculum requirements outside of the Major.

The First Year Common Experience includes a First Year Writing Seminar.

The Writing Requirement has three segments: demonstration of basic skills in English Composition, completion of a 100-level W course no later than the fourth semester in residence, and completion of either a second 100-level W course **or** a 200-level W (discipline-specific) course **or** an approved course in Oral Communications at Vanderbilt University as a graduation requirement. Only W courses offered in the College of Arts

and Science or in Music Literature (MUSL) may count in fulfillment of the Writing Requirement.

The Liberal Arts Requirement is composed of a total of thirteen courses taken at Vanderbilt, and distributed across six areas of inquiry. The First Year Writing Seminar and all 100-level and 200-level W courses and all Oral Communications courses are also counted in the thirteen-course Liberal Arts Requirement.

1. **The First Year Common Experience**
 - a. [First Year Writing Seminar](#) (*one course*)
2. **[The Writing Requirement](#) (2-3 courses)**
 - a. English Composition (*appropriate test score or one course*)
 - b. [100-level W](#) Requirement
(*one course before the end of the fourth semester*)
 - c. One [100-level](#) or [200-level W](#) or [Oral Communications Course](#)
3. **[The Liberal Arts Requirement](#) (13 courses)**
 - a. HCA – [Humanities and the Creative Arts](#) (*three courses*)
 - b. INT – [International Cultures](#) (*three courses*)
– [Foreign Language Proficiency](#)
 - c. US – [History and Culture of the United States](#) (*one course*)
 - d. MNS – [Mathematics and Natural Sciences](#) (*three courses*)
 - e. SBS – [Social and Behavioral Sciences](#) (*two courses*)
 - f. P – [Perspectives](#) (*one course*)

The engineering requirements are available at <http://www.vanderbilt.edu/catalogs/undergrad/UGAD.pdf#eenged> and an example for chemical engineering is posted at <http://www.che.vanderbilt.edu/index.php/undergraduate-program>

The B.E. degree in chemical engineering requires a minimum of 126 hours course credit. The courses and credits are distributed as follows:

1. Mathematics (14 hours). Required courses: Math 155a, 155b, 175, 198.
2. Basic Science (24 hours). Required courses: Chemistry 102a-b, 104a-b, 219a-b, 220a-b; Physics 116a-b, 118a-b.
3. Engineering Science (3 hours). Required course: ES 140.
4. Computer Science (3 hours). Required course: CS 103.
5. Liberal Arts Core (18 hours). To be selected to fulfill the Liberal Arts Core requirements listed in the Degree Programs in Engineering.
6. Chemical and Biomolecular Engineering required courses (32 hours) ChBE 161, 162, 180, 223, 225, 228W, 230, 231, 233W, 234W, 297.
7. Chemical Engineering Focus Area (32-33 hours). Students must complete one of the four focus areas listed below.

The liberal arts core is described as

In order to provide the elements of a general education considered necessary for responsible practice as an educated engineer, the School of Engineering requires each student to complete at least 18 hours in the Liberal Arts Core. The Liberal Arts Core will be selected from courses in the five distribution categories designated in the AXLE Curriculum Course Distribution of the School of Arts and Science:

a) Humanities and the Creative Arts

b) International Cultures, including Arabic 210A, Chinese 201, French 101A, German 101, Greek 201, Hebrew 111a, Italian 101a, Japanese 200ab and 201, Latin 101, Portuguese 100a, Russian 101, Spanish 100 and 101

c) History and Culture of the United States

d) Social and Behavioral Sciences

e) Perspectives and the distribution categories of:

f) Music Composition and Performance

All MUSC, MUSE, MUSO, and MUSP courses in the Blair School of Music.

g) Cognition and Development

All Peabody College courses in Psychology and Human Development numbered 1200-2000, 2230-2470, and 2560-2610, and in Human and Organizational Development numbered 1000, 1100, 1200-1800, and 2240-2280

h) Technology in Society

Computer Science 151

Engineering Management 150, 244, 275

Engineering Science 153, 155, 157

Environmental Engineering 296

Within the 18-hour requirement, the student must meet the following distribution requirements:

1. At least 3 credit hours in each of at least three different categories
2. At least 6 credit hours in one of categories a) to g)
3. At most 3 credit hours of Technology in Society courses

Nursing and management are graduate-only programs at Vanderbilt.

Washington University

The University College of Arts & Sciences requirements are posted at <http://ucollege.wustl.edu/programs/undergraduate/generaled>

Appendix III: Data for other institutions of interest

We've collected in this appendix material the Task Force collected for institutions we did not study in depth. The reader should be warned that the Task Force did not verify the information in this section and that it was often difficult to be certain how an institution handles their GER('s) based on a casual review of their online postings. We do want to thank the office of Undergraduate Admissions, particularly Bob McCullough and Brian Browne, for the assistance they provided in collecting much of this information.

Pacific Lutheran University has posted on the web a table with links to the Gen Ed requirements of 44 other universities. <http://www.plu.edu/~gened/profiles/home.html>. You can access their general education requirements by clicking on the institution. However, most of the listed institutions are not similar to CWRU but are instead liberal arts colleges.

Boston College

The GER's can be found at

<http://www.bc.edu/offices/stserv/meta-elements/pdf/0607catalog.pdf>

The CAS requirements are on page 49.

Boston University

BU has been discussing a single GER. A Task Force Report from BU is a 46-page pdf document with the following contents (among others):

Introduction: Designing a "One BU" Landscape
Defining General Education at BU
The Arts, Sciences, and Concrete Outcomes
Numeracy and Society
Technology
Placing Primacy on Research at the Undergraduate Level
Expanding Undergraduate Opportunities for Innovation and Entrepreneurial Studies
Moving from Magnet to Radiant Model
Accessing the Arts
Achieving a Global Competency
Global Education: Existing Resources
Co-Curricular Education
Living Communities and "Clusters"
Integration: Creating Paths, Removing Barriers
General Service Courses and Accessibility
Locating Courses
Uniting the Arts, Sciences, and Professional Schools:
Cluster Courses
Clusters' Contribution to Faculty Development

A Meaningful Curriculum
Navigation, Advising, and Compassing
Assessment
Accomplishing Our Goals
A Call for Action

A separate strategic planning report includes the following section on undergraduate education

UNDERGRADUATE EDUCATION

A well-articulated and coherent curriculum for undergraduates, updated to meet 21st-century needs, is essential for the University to fulfill its academic aspirations. We have the opportunity to implement a new model of education in the near term and should act on it immediately. BU has yet to fully capitalize on the mixture of liberal arts and professional programs available to our undergraduates and to exploit and support the central role that CGS and CAS play in our undergraduate curricula. We must find ways to convert programmatic diversity, complexity, and size into distinctive strengths for our students. We need to forge stronger, creative, and more seamless ties between CAS/CGS and the professional Schools. We must also develop the means for effective large-scale education that combines personalized teaching with the use of technology. We need to study the curriculum models used by other universities, on campus and online, and adapt them to BU. We must articulate specific tracks and pathways through the undergraduate curriculum, with CAS and CGS clearly at the core of the undergraduate experience. A Task Force on Undergraduate Education will be instrumental in implementing these ideas. BU is educating students for life and work in a world that requires them to think within a global context. It is a world where societal change is rapid, and science and technology infuse most aspects of life and pose new dilemmas. Our students must learn to understand and adapt to the global nature of economic, social, and cultural developments and complexities. They must be prepared to interact meaningfully and fruitfully with individuals from a variety of cultures. As competition becomes increasingly global, we must recognize that levels of literacy, mathematical skill, scientific understanding, and reasoning ability are declining in American higher education. We need to reverse this trend. Fundamental knowledge of basic science and technology is essential for our undergraduates. We must also instill in students a grasp of history, social science, the humanities, ethics, and a sense of individual purpose. With these objectives in mind, we should develop an exemplary, forward-looking, and distinctive model of undergraduate education for the 21st century. Undergraduates at all colleges and universities face certain challenges: lack of direction, feelings of disconnectedness and not belonging, early pressure to specialize and achieve in areas that turn out not to be of lasting interest, and confusion about how to handle new choices and dilemmas they encounter. We must be sure to offer the support and attention that undergraduates need to overcome these challenges, especially in their first two years. We can help new students by more clearly articulating the various pathways open to first-year undergraduates and by committing to personalized, effective mentoring and advising throughout students' time at BU to ensure that they receive accurate and insightful guidance when needed. Advising should cover everything from the mechanics of scheduling and registration to guidance on intellectual avenues.

Recommendations:

- Define and refine the first two years of undergraduate education so that the liberal arts and sciences in CAS and CGS are at the core, with strong reciprocal connections between CAS/CGS and the professional Schools.

- Revitalize undergraduate education in the core liberal arts by reviewing curricula in undergraduate programs, CAS, and CGS and by identifying core needs in professional Schools.

- Expose students early and often to challenging and broadening courses. Ensure that undergraduates are intellectually engaged in their first two years at BU and are not merely fulfilling requirements.

- Provide all first-year students with small (10 students or fewer), faculty-led, staff-assisted, multidisciplinary seminars. Utilize educational technologies effectively and efficiently to help faculty maximize the value, impact, and interest of class time and discussion.

- Ensure that general education requirements among the Schools/Colleges are sufficiently alike and flexible enough to enable informed students to change direction or add a major or minor without incurring additional cost or a delay in graduation.

- Identify the specific capabilities that every graduating student should have. Core capabilities in writing, speaking, reasoning, and presentation should be updated to meet the needs of today's and tomorrow's graduates. Expectations in basic science, quantitative analysis, knowledge of global developments, and languages should be defined clearly and pursued energetically.

- Encourage all students to participate in an internship, research or scholarly project, or substantial community service opportunity; and continue to develop and maintain partnerships in the city of Boston and around the world with corporations, councils, research laboratories, academic seminars, etc. to increase potential opportunities for BU student involvement.

- Instill in students a sense of engaged citizenship and global perspective as well as the capacity for continuous intellectual growth.

- Establish a Task Force on Undergraduate Education to make more detailed recommendations and to test and implement the strategic recommendations stated above.

- The Task Force will be convened immediately and propose changes in the near term; annual reports will be submitted to assess progress toward our objectives.

Brandeis University

See http://my.brandeis.edu/faq/one?faq_id=329

1. What are the Brandeis General Education Requirements, and why are they in place?
2. University Seminar (USEM)
3. University Writing Seminar (UWS)

4. Composition
5. Foreign Language
6. Physical Education
7. School Distribution
8. Quantitative Reasoning (qn)
9. Non-Western and Comparative Studies (nw)
10. Writing Intensive (wi)
11. Elective Courses

Caltech

http://pr.caltech.edu/catalog/pdf/catalog_10_11_part3.pdf page 129 & 176

108 units of H&SS + PHED, with ~9 units/course = 12 courses

Chicago

Chicago has no engineering school

<https://collegeadmissions.uchicago.edu/academics/commoncore.shtml>

Columbia

Columbia College & FU Foundation Engineering & Applied Science seem to have different requirements

<http://www.college.columbia.edu/core>

<http://bulletin.engineering.columbia.edu/undergraduate-programs>

Cornell

Engineers have two first-year writing seminars plus six 6 courses in 'liberal studies'

<http://www.engineering.cornell.edu/programs/undergraduate-education/degree-requirements/index.cfm>

George Washington University

See <http://www.gwu.edu/~bulletin/ugrad/csas.html> for the A&S requirements. Excerpts are copied below.

General Curriculum Requirements

With the exception of entering students in the College's School of Media and Public Affairs, all candidates for the degree of Bachelor of Arts or Bachelor of Science are admitted to a general arts and sciences curriculum until they declare a major field.

General curriculum requirements are established by the Arts and Sciences faculty as a whole and administered through its elected committees. Students must demonstrate that

they have acquired familiarity with the breadth and diversity of the arts and sciences. Students will typically fulfill these requirements by taking the required number of GW courses in seven categories.

1. *Literacy*—Students take University Writing [20](#) (4 credits) in their freshman year plus two courses designated as Writing in the Discipline (6 credits) before graduation, preferably in their sophomore or junior years.
2. *Quantitative and Logical Reasoning*—Students must take two courses (6 credits) from the fields of mathematics, logic, or statistics.
3. *Natural Sciences*—Students must take three courses with laboratories (9–12 credits) in at least two of the following fields: biology (including biological anthropology), chemistry, geological sciences, and physics (including astronomy).
4. *Social and Behavioral Sciences*—Students must take two courses (6 credits) in one or more of the following fields: anthropology (except biological anthropology), communication, economics, geography, linguistics, media and public affairs, political science, psychology, speech and hearing science, and sociology (including human services).
5. *Creative and Performing Arts*—Students must take 3 credits in one of the following fields: fine arts, creative writing, dance performance, music performance (a single instrument or a single ensemble), and theatre performance.
6. *Humanities*—Students must take four courses (12 credits) in at least two of the following fields: American studies, classical studies, literatures in English, foreign literatures in their original language and in translation, history (including the history and appreciation of art, dance, music, film, and theatre), humanities, philosophy (except logic), religion, peace studies, and women’s studies.
7. *Foreign Languages and Cultures*—Students must take two courses (6–8 credits) in one language other than English, beginning at the level at which they place, or students must take two courses (6–8 credits) in aspects of foreign, non-English speaking cultures from the fields of anthropology, art history, classical and Semitic languages and literatures, East Asian languages and literatures, German and Slavic languages and literatures, geography, history, humanities, international affairs, music, political science, religion, and women’s studies. For those who choose the foreign cultures option, courses must be selected from the following:

Georgetown

See <http://bulletin.georgetown.edu/collegegen.html#general>

Excerpts are copied below.

Complete the following General Education requirements:

Humanities and Writing	2 courses
History	2 courses
Philosophy	2 courses

Theology	2 courses
Math/Science	2 courses
Social Science (except biology, biochemistry, chemistry, and B.S. physics majors)	2 courses
Mastery of a foreign language through the intermediate level	

The general education requirements are ordinarily fulfilled in the student's first and second years.

Georgia Tech

ENGR: 2 ENGL courses + 6 H&SS + ECON

<http://www.coe.gatech.edu/content/common-courses-engineering>

Harvard

Requirements and Opportunities

There are three main parts to a Harvard College education: concentration, general education, and electives. In total, all students must complete 32 half-courses (semester-long courses). For detailed explanations of academic requirements, please consult the Handbook for Students

Concentration: Students choose their concentration near the end of their third term in residence. There are currently 45 concentrations from which to choose, including several interdisciplinary programs. Most concentrations require between 12-14 half-courses, or about 40-45% of a student's overall program.

General Education: The new Program in General Education requires that students take 8 half courses in 8 different categories (one of which must also engage substantially with the study of the past). In addition, all students must complete a required course in Expository Writing during their first year and must fulfill the language requirement before the beginning of the third year. General Education, Expository Writing, and the language requirement combined require 9-11 half-courses, or about 30-35% of a student's overall program.

Electives: The number of elective courses in each student's program will depend on the choice of concentration, whether a student is pursuing an honors degree, and numerous other factors. Students may choose to use electives to pursue an optional secondary field or a foreign language citation, facilitate study abroad, delve more deeply into advance coursework or research in a field, prepare for graduate school, or pursue a variety of other intellectual interests. Students are encouraged to sample widely and take advantage of the wealth of unique academic opportunities available at Harvard.

<http://www.college.harvard.edu/icb/icb.do?keyword=k61161&pageid=icb.page284442>

Harvard, as described at <http://news.harvard.edu/gazette/story/2007/05/fas-approves-new-general-education-curriculum/>

The goals of the new General Education curriculum are to prepare students for civic engagement; teach students to understand themselves as products of — and participants in — traditions of art, ideas, and values; prepare students to respond critically and constructively to change; and to develop students' understanding of the ethical dimensions of what they say and do.

The new program requires students to take a semester-long course in each of the following areas:

<•> Aesthetic and Interpretive Understanding to help students develop skills in criticism, that is, aesthetic responsiveness and interpretive ability.

<•> Culture and Belief to develop an understanding of and appreciation for traditions of culture and belief in human societies.

<•> Empirical and Mathematical Reasoning to teach the conceptual and theoretical tools used in reasoning and problem solving, such as statistics, probability theory, mathematics, logic, and decision theory.

<•> Ethical Reasoning to teach how to reason about moral and political beliefs and practices, and how to deliberate and assess claims about ethical issues.

<•> Science of Living Systems to introduce concepts, facts, and theories relevant to living systems.

<•> Science of the Physical Universe to introduce key concepts, facts, and theories about the physical universe that equip students to better understand our world and the universe.

<•> Societies of the World to examine one or more societies outside the United States.

<•> The United States in the World to examine American social, political, legal, cultural, and/or economic institutions, practices, and behavior, from contemporary, historical, and/or analytical perspectives.

Harvey Mudd

<http://www.hmc.edu/academicsclinicresearch/ourcurriculum/commoncore.html>

Illinois at Urbana-Champaign

See <http://courses.illinois.edu/cis/gened/> .

The General Education (GenEd) requirements describe the core courses all students must take in order to graduate. They are an important component of students' education at the University of Illinois. Besides specializing in a major and training for a career, students should become familiar with some of the many rapidly changing disciplines. Through these requirements, Illinois undergraduates:

- expand their historical, aesthetic, cultural, literary, scientific, and philosophical perspectives
- improve critical and analytical thinking; and
- learn skills in finding, managing, and communicating knowledge.

General Education Course Lists

Currently Approved General Education Courses by Category:

- Advanced Composition (formerly known as Composition II)
- Composition I
- Cultural Studies: Non-Western/U.S. Minority Culture(s)
- Cultural Studies: Western/Comparative Culture(s)
- Humanities & the Arts
- Language Requirement
- Natural Sciences & Technology
- Quantitative Reasoning
- Social & Behavioral Sciences

Lehigh University

<http://www4.lehigh.edu/academics/colleges>

Michigan

<http://www.provost.umich.edu/reports/slfstudy/ir/require.html>

“Students are directly admitted to one of twelve undergraduate Schools and Colleges.”

“The University offers a wide range of programs and courses, ensuring sufficient breadth and depth in the first two years of undergraduate education. The various schools and colleges all require that as freshmen and sophomores students take courses in social sciences, humanities, mathematics and sciences. Each school and college sets out specific distribution requirements in its catalog or bulletin. The centrality and importance of broad-based learning are articulated in these publications.”

MIT

Detailed Institute Requirements are posted at <http://web.mit.edu/catalog/overv.chap3-gir.html>.

New York University

<http://www.nyu.edu/academics/undergraduate-education.html>

North Carolina

<http://advising.unc.edu/advising/genedrequirements>

http://www.unc.edu/depts/uc/docs/criteria_3-7-05.pdf

See <http://www.unc.edu/depts/uc/06description.html> for much more detail than is provided below.

“The University of North Carolina at Chapel Hill strives to cultivate the skills, knowledge, values, and habits that will allow graduates to lead personally enriching and socially responsible lives as effective citizens of rapidly changing, richly diverse, and increasingly interconnected local, national, and worldwide communities. The undergraduate experience aims to foster in Carolina graduates the curiosity, initiative, integrity, and adaptability requisite for success in the complex environment of the twenty-first century.

To these ends our curriculum seeks to provide for all students: (1) the fundamental skills that will facilitate future learning; (2) broad experience with the methods and results of the most widely employed approaches to knowledge; (3) a sense of how one might integrate these approaches to knowledge in a way that can cross traditional disciplinary and spatial boundaries; and (4) a thorough grounding in one particular subject. The undergraduate major is dedicated to the fourth of these curricular goals; the General Education curriculum, organized around the theme of “Making Connections,” addresses the other three goals simultaneously.

The General Education requirements that apply to all UNC undergraduates can be outlined as follows:

- Foundations: the skills needed to communicate effectively both in English and another language; to apply quantitative reasoning skills in context; and to develop habits that will lead to a healthy life.
- Approaches: a broad experience with the methods and results of the most widely employed approaches to knowledge.
- Connections: a sense of how to integrate foundational skills and disciplinary perspectives in ways that encourage linkages between discrete areas of knowledge, on the one hand, and differing geographic, social, conceptual, and practical contexts (local, national, global, academic, professional), on the other hand.

Northwestern

<http://www.northwestern.edu/orientation/parents/academic-life.html>

“Overview of the Undergraduate Experience”

“Undergraduate teaching and learning have long been priorities of Northwestern University, though any generalization about undergraduate education is difficult to make because of the decentralized nature of the University: six separate schools, each with myriad undergraduate degree programs, each with varying degree requirements set with relative autonomy by its respective faculty. And while each school endeavors to ensure that students enjoy both breadth (general education) and depth (mastery of a particular field through the major), there is no core curriculum and no commonly shared set of academic requirements.”

Notre Dame

<http://fys.nd.edu/>

“The First Year of Studies serves as the college for all incoming students, regardless of their intended program, providing full-time professional advisors to support the students as they complete the First Year Curriculum and move successfully to a college program.”

University Requirements

Incorporated into the First Year curriculum are several of the University Requirements for all Notre Dame Students. These University Requirements are listed below.

- 1 semester of a University Seminar
- 1 course in First-Year Composition
- 2 courses in Mathematics
- 2 courses in Natural Science
- 1 course in History*
- 1 course in Social Science*
- 2 courses in Philosophy*
- 2 courses in Theology*
- 1 course in Fine arts* or Literature*
- 2 semesters of Physical Education or ROTC

Ohio State

OSU has a complex common GER described at <http://gec.osu.edu/>

Undergraduate students at Ohio State, regardless of major, share a common General Education Curriculum, known as the GEC. The GEC is an integral part of an Ohio State

degree, providing graduates the skills, competencies, and breadth of knowledge to become educated, productive citizens.

Why is the GEC important?

The General Education Curriculum is designed to provide a better understanding of society's:

- traditions and past
- accomplishments and aspirations
- relation to and responsibility for the natural world
- diversity and plurality
- problems and needs

How is the GEC structured?

The General Education Curriculum is grouped into five areas:

- Skills
 - Writing and Related Skills
 - Quantitative and Logical Analysis
 - Foreign Language
- Diversity
- Issues of the Contemporary World
- Historical Study
- Breadth
 - Natural Sciences
 - Social Sciences
 - Arts and Humanities

See http://pharmacy.osu.edu/academics/bsps/bsps_documents/GECs_2009.pdf for a 12 page list of courses that satisfy requirements in each category for pharmacy students.

State of Ohio

The Board of Regents of the State of Ohio coordinates GER courses for state-supported institutions. Some details are provided at <http://regents.ohio.gov/transfer/index.php>

"Ohio Transfer Module (OTM)

The Ohio Transfer Module (OTM), which is a subset or a complete set of a public college's or university's general education requirement that represents a common body of knowledge and academic skills, is comprised of 36-40 semester hours or 54-60 quarter hours of courses in the following fields: English composition and oral communication; mathematics, statistics and formal/symbolic logic; arts and humanities; social and behavioral sciences; and natural sciences. Additional elective hours from among the five areas make up the total hours for a completed Transfer Module."

Via <http://regents.ohio.gov/transfer/modules/index.php> one can see the minimum transfer credits for general education requirements at every state-supported institution. Ohio State's posting is <http://regents.ohio.gov/transfer/modules/4yr/osu.pdf>

"A transfer module is a subset or a complete set (**in some cases, the institution's Transfer Module may satisfy the entire set of general education requirements**) of a college's or university's general education requirements that represents a body of knowledge and academic skills common across Ohio colleges and universities, containing 36- 40 semester hours or 54-60 quarter hours of courses in the fields of (1) English; (2) mathematics; (3) arts/humanities; (4) social and behavioral sciences; (5) natural and physical sciences; (6) interdisciplinary coursework (optional). Ohio Transfer Module web site was last updated August 11, 2008. Should you have any questions regarding an institution's transfer module please download the **Ohio Transfer Module coordinators list** to find the institution's representative for this initiative."

Penn

<http://www.college.upenn.edu/admissions/general.php>

Princeton

<http://www.princeton.edu/pub/ua/requirements/> lists the requirements for the AB and BSE (engineering). Although only a writing seminar is described as being for all undergrads, the following are common elements for the GER's.

- Epistemology and Cognition (EC)
- Ethical Thought and Moral Values (EM)
- Foreign Language (at the 107/108 level or above)
- Historical Analysis (HA)
- Literature and the Arts (LA)
- Social Analysis (SA)

Purdue

<https://engineering.purdue.edu/ENE/InfoFor/CurrentStudents/genedcourses>

https://www.science.purdue.edu/index.php?option=com_content&view=article&catid=56:uncategorized&id=274:general-education-sample-sequence-groups-

Rensselaer Polytechnic University

The Catalog http://catalog.rpi.edu/content.php?catoid=9&navoid=196#unde_prog lists the requirements for a Bachelor's degree. A selection from <http://catalog.rpi.edu/content.php?catoid=9&navoid=202> or http://catalog.rpi.edu/content.php?catoid=9&navoid=202#Unde_Curr_and_Cour is copied below

The bachelor's degree is awarded to students who have pursued successfully, as evaluated by the faculty, a Plan of Study that encompasses several disciplines. Each Plan of Study has at least two objectives: first, to reach a preprofessional standing or fundamental mastery in a selected discipline; second, to develop some grounding in knowledge found in liberally educated persons, an appreciation of technology and science, and an openness to ongoing learning.

The requirements of each baccalaureate program are outlined as follows:

- The number of courses and credit hours is prescribed by each curriculum. Minimum requirements are 124 credit hours for science and for humanities and social sciences majors, 124 for management, 128 for engineering, and 168 for the professional degree in the School of Architecture.
- The course content in physical, life, and engineering sciences must total a minimum of 24 credit hours, including at least eight credit hours of mathematics. For information on additional requirements see the School of Science section of this catalog.
- The course content in humanities and social sciences must total a minimum of 24 credit hours, including at least eight credit hours in the humanities and eight credit hours in the social sciences. For information on additional requirements see the School of Humanities, Arts, and Social Sciences section of this catalog.
- Every student is required to take at least two communication-intensive courses. At least one of these must be in the students' major and at least one of the courses must be writing-intensive and taught in the School of Humanities, Arts, and Social Sciences.

Stanford

The University GER is described in detail at <http://studentaffairs.stanford.edu/registrar/students/ger-purpose>

Some excerpts are copied below but the above URL provides much more information.

Their purpose is: 1) to introduce students to a broad range of fields and areas of study within the humanities, social sciences, natural sciences, applied sciences, and technology; and 2) to help students prepare to become responsible members of society.

The following structure for General Education Requirements became effective with the 2005-06 entering freshman and transfer class:

- **Introduction to the Humanities**—one quarter introductory courses followed by two quarter thematic sequences.
- **Disciplinary Breadth**—requirement satisfied by completing five courses of which one course must be taken in each subject area.
- **Education for Citizenship**—requirement satisfied by completing two courses in different subject areas; Education for Citizenship is divided into four subject areas: Ethical Reasoning, the Global Community, American Cultures, and Gender Studies.

- **Ethical Reasoning**
- **The Global Community**
- **American Cultures**
- **Gender Studies**

Syracuse University

The 76 page handbook describing the liberal arts core of the CAS is available at http://thecollege.syr.edu/students/undergraduate/pdfs_docs/Liberal_Arts_Core_Guidebook_2010-2011.pdf

Texas-Austin

<http://statecore.its.txstate.edu/>

Texas apparently coordinates programs across state institutions. Via the above URL you can examine the core at every state-supported university and college in Texas, including UT-Austin.

You and the Texas Core Curriculum

If you first enrolled at a Texas public university or college in Fall 1999 or more recently, your degree requirements include a General Education Core Curriculum. Every public institution in Texas has a Core, which is designed to provide a solid foundation for your college education and to make transfers between and among Texas institutions of higher education as smooth and seamless as possible.

How the Core Curriculum Works

Each institution's Core Curriculum applies to all academic degrees. They range from 42 to 48 credit hours, depending on the college or university. Each Core Curriculum is divided into 8 or 9 categories that are common across the state. If you take the approved Core natural science courses at institution A, they are annotated on your transcript with a Core code by A and must be accepted as fulfilling that portion of the Core at institution B or any other Texas public institution. If Astronomy is a Core natural science at A and is not at B, it must still be accepted at B. This is a whole new way of doing things because the school where you take the course decides how it will transfer. And that decision is binding on any Texas school to which you transfer.

The URL given above will provide a complete list of courses that satisfy each category of requirement.

University of Texas at Austin-August 2010

10 - Communication (2 courses)

20 - Mathematics (1 course)

30 - Natural Science (2 courses)

31 - Additional Natural Sciences (2 labs)

40 - Humanities (1 course)

50 - Visual and Performing Arts (1 course)

60 - History (2 courses)

70 - Government (2 courses)

80 - Social and Behavioral Sciences (1 course)

90 - Institutionally Designated Option

1 course to be completed during 1st year in residence

Chosen from

Undergraduate Studies 302 - Signature Course

Undergraduate Studies 303 - Signature Course

Tutorial Course 302 - (Plan II Honors)

39 total credit hours

Tufts

<http://uss.tufts.edu/>

“University Requirements, School of Arts & Sciences, For complete information on foundation, distribution, and concentration requirements, please consult **The Bulletin of Tufts University**.” This URL will take you to an online system that tells you which course satisfy which breadth requirements.

USC

From <http://college.usc.edu/general-education-program>

“The university's general education program is structured to provide a coherent, integrated introduction to the breadth of knowledge you will need to consider yourself (and to be considered by other people) a generally well-educated person. In thinking over what is necessary, the faculty identified five principal goals:

- To teach students the skills needed for critical thinking, writing and reading.
- To teach these skills in a specific context, i.e., social issues, cultures and traditions, science and society.
- To teach students how to apply these skills so that they can find, evaluate, and use the vast amount of information now available via the media, the internet, new technologies, and traditional forms of knowledge.
- To teach students to discern and assess the values that underlie various critical positions, and to articulate their own with coherence and integrity.
- To encourage a passion for learning.

These are the learning objectives for the General Education program as a whole. Learning objectives have been identified as well for each of the General Educations categories. Outcomes and assessment measures for the courses that satisfy each requirement are linked to the categories below.

The program is divided into two parts: the first part, called "Foundations," presents courses that give you the "big picture" about (I) the development of western European and American culture, as well as (II) alternative cultural traditions and (III) the basic principles animating scientific inquiry. The second part, called "Case Studies," provides particular opportunities for you to sharpen your critical intelligence by considering specific (IV) applications of science and technology, (V) works of literature, philosophy and art, and (VI) contemporary social issues of urgency and importance. In addition, all students must satisfy writing and diversity requirements to complete the USC Core.

The freshman year semester of the writing requirement is co-registered with classes in the Social Issues category and a speaker series, helping to build intellectual community among students and faculty in the general education program.”

Wake Forest

Wake Forest has an undergraduate college and a business school.

<http://www.wfu.edu/new/publications/academics/ugb2010-2011.pdf> page 59

General Requirements

The basic and divisional course requirements leave students in the College considerable flexibility in planning their courses of study. Except for HES 100 and 101, only courses of three or more semester hours count towards satisfying basic and divisional requirements. All students must complete (1) the core requirements (unless accepted for the Open Curriculum), (2) a course of study approved by the department or departments of the major, and (3) elective courses, for a total of 120 hours.

Core Requirements

(Basic and Divisional combined)

The core requirements are intended to introduce the student to various fields of knowledge and to lay the foundation for concentration in a major subject and related fields during the junior and senior years. For these reasons, as many of the requirements as feasible should be taken in the first two years.

Basic Requirements

All students must complete five required basic courses (unless exempted through procedures established by the departments concerned):

- FYS 100 (first-year seminar)
- English 111 (writing seminar)
- One 200-level foreign language course
- Health and Exercise Science 100 and 101

The divisional requirements include 5 courses in humanities, literature, fine art, social sciences and math & natural sciences.

Yale

<http://www.yale.edu/yalecollege/sophomore/requirements/general.html>

Distributional Requirements for the Bachelor's Degree

Students are required to take no fewer than two course credits in the humanities and arts, two course credits in the sciences, and two course credits in the social sciences. In addition to completing courses in these disciplinary areas, students must fulfill skills requirements by taking two course credits in quantitative reasoning, two course credits in writing, and courses to further their foreign language proficiency. Depending on their level of accomplishment in foreign languages at matriculation, students may fulfill this last requirement with one, two, or three term courses or by a combination of course work and approved study abroad.

Courses that fulfill the distributional requirements are designated in course listings by the abbreviations Hu, Sc, So, QR, WR, and, for the foreign language requirement, L1, L2, L3, L4, or L5.

Appendix IV: Accreditation Information

The CWRU College of Arts & Sciences as a whole is not subject to any special accreditation constraints but certain programs within the CAS do have accreditation, Chemistry is one example. Excerpts from the accreditation criteria for the CSE, WSOM and FPBSON are copied below.

CRITERIA FOR ACCREDITING ENGINEERING PROGRAMS

Effective for Evaluations During the 2010-2011 Accreditation Cycle
ABET, Inc. Engineering Accreditation Commission

Criterion 3. Program Outcomes

Engineering programs must demonstrate that their students attain the following outcomes:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program. Program outcomes must foster attainment of program educational objectives.

There must be an assessment and evaluation process that periodically documents and demonstrates the degree to which the program outcomes are attained.

Criterion 5. Curriculum *part (c) is relevant to general education*

The curriculum requirements specify subject areas appropriate to engineering but do not prescribe specific courses. The faculty must ensure that the program curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution. The professional component must include:

- (a) one year of a combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline
- (b) one and one-half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study. ...
- (c) a general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives.

Assurance of learning fall 08 for Undergraduate Management

Learning Objectives	Related competencies, traits,
What did we assess?	observed student outcomes
1. Fundamentals	Students demonstrate knowledge of fundamental skills in core business courses
2. Experiential Learning	Record experiential learning opportunities (internships, research projects) in which our students participate
3. Research and Analysis Skills	Students demonstrate adequate research skills in written and oral projects
4. Communication	Students will have effective written and verbal communication skills
5a. Leadership	Expect student to develop and demonstrate personal and team leadership skills
5b. Organizational and Individual Responsibility	Students will demonstrate professional responsibilities for self and team.
5c. Teamwork	Students should demonstrate positive team building skills

Accreditation of Baccalaureate Nursing Programs FPBSON

Curricula of BSN programs are governed by Board of Nursing (BON) regulations for a specific state and by a national accrediting body. The BON requirements focus on areas

of content within nursing courses. There are two organizations that provide national accreditation: National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE). All groups require that BSN education be grounded in a liberal education. CCNE specifies additional essentials that BSN curricula must include: professionalism and professional values, scholarship for evidence based practice; leadership, quality improvement, and patient safety; management and patient care technology; policy, finance, and regulatory environments; interprofessional communication and collaboration; health promotion and disease prevention at individual and population levels; and generalist practice. The NLNAC (the organization that currently accredits the FPB BSN program) is less prescriptive in its additional requirements simply specifying that the curriculum must be based on the school's philosophy and conceptual framework, include interdisciplinary collaboration and research, and incorporate a set of national standards and competencies.

Outcomes for the Nursing program are presented in the following table.

Concept areas:	
Research	Critiques and applies research findings to clinical practice
Practice of a profession	Provides direct patient care and assumes leadership role in directing nursing care to individuals, groups and families
Leadership	Participates and assumes beginning leadership roles
Ethics	Uses principles of ethics and the professional code as a framework for decision making
Team development & practice	Works effectively as a member of an interdisciplinary health care team
Communication	Uses effective communication techniques with diverse clients, colleagues, and information systems
Policy	Describes process of health care policy development
	Teaches and counsels individuals, families and other groups about health, illness and health seeking behaviors

Appendix V: Current General Education Requirements at CWRU

Detailed descriptions of the undergraduate GER's can be found at

http://www.case.edu/provost/ugstudies/GenEd_CAS.pdf

http://www.case.edu/provost/ugstudies/GenEd_EGR.pdf

http://www.case.edu/provost/ugstudies/GenEd_NUR.pdf

http://www.case.edu/provost/ugstudies/GenEd_MGT.pdf

The four schools *share* the following elements of their GERs. All of the schools have requirements beyond those listed below. These common elements require at least 37 credits. Degree programs normally require 120 – 130 total credits.

1. SAGES First Seminar, 4 credits with ~1 credit allocated towards writing instruction and with advising by the seminar instructor and various common elements (*common for all freshmen*) built into the course. The First Seminar also includes exposure to other UCI institutions.
2. Two SAGES University Seminars, 3 credits each with ~ 1 credit of each allocated to writing instruction, for a total of 3 credits of writing instruction. There is also a writing portfolio requirement but these portfolios are no longer used to evaluate individual students. Before SAGES, students studied writing in ENGL 150.
3. A SAGES Departmental Seminar, which may or may not be a course that is required for other purposes in a degree program.
4. A SAGES Senior Capstone course, which may or may not be a course that is required independent of SAGES.
5. 4 courses in social science and/or arts & humanities departments. The CSE requires 4 courses total while the CAS, FPBSON & WSOM divide this into 2 courses from each area.
6. Natural and Mathematics Sciences - at least 2 courses in these areas are taken by all CWRU undergrads.
7. PHED - a year of Physical Education is required of all undergraduates but this normally means 0 credits.

Phase-0 Task Force on a University Common Undergraduate Core Curriculum

October 14, 2010

Gary Chottiner
Donald L. Feke

Task Force Findings

- There exists a wide range of practices and philosophies regarding a common core for general education.
 - Some universities make clear statements about their motivation for common core requirements and have established faculty governance bodies to oversee their core.
 - Some universities have philosophies that argue against common core requirements and rely instead on individual schools or departments to set general education requirements.
 - Other universities advertise that they have no common requirements for their undergraduates, promoting freedom of choice, etc., but a closer examination of their regulations reveals that common requirements do exist.

Task Force Findings – potential advantages of a common core

- A common core can help create a distinctive identity for an institution. This may have implications (*potentially negative as well as positive*) in recruiting students, faculty and staff.
- A common core can be designed to support a university's institution-wide strategic plan.
- A common core allows an institution to distinguish its graduates as having all achieved a set of outcomes that go beyond those peculiar to a specific major or profession.
- A common set of requirements provides a common experience for students, particularly for freshmen, even when those requirements allow students to choose from menus of options.
- Depending on its size and complexity, a common set of requirements may simplify advising and course choice for students who are uncertain of their majors.



Task Force Findings – potential advantages of a common core

- A common core can be a resource-efficient way to deliver general education.
- A common set of requirements makes it easier for students to select and/or change their major and is consistent with a practice in which students are admitted to the university rather than to specific schools.
- A common set of requirements can make it simpler for students to pursue multiple majors and/or minors, as long as these requirements are not so extensive that they limit students' ability to take the additional courses they will need.
- A common core can help an institution satisfy external institutional accreditation constraints.



Task Force Findings – potential disadvantages of a common core

- Faculty within a given school may know, or believe they know, what's best for their own students. Having to conform to a common core may be a constraint against delivering an optimum curriculum.
- Requiring a certain number of courses for a common core reduces students' flexibility in choosing courses that match their personal perceived interests.
- Constraining choice limits a student's ability to explore various majors.
- A mandate for certain courses or activities makes it more difficult for students to pursue additional majors, minors or activities that interest them.



Task Force Findings – potential disadvantages of a common core

- A common core can require significant faculty, staff and financial resources for courses and activities included in the common core. This may diminish resources available for other purposes such as courses in the majors and may lead to resentment if resources are shifted from one part of an institution to another.
- A common core lessens the distinctiveness of different schools within an institution.
- A common core that includes institutionally distinctive requirements complicates transfer into CWRU, semester abroad programs, and articulation agreements with other schools.
- A common core requires that governance and funding structures be established and maintained.



“Decentralization is a natural act in universities. Decentralization of authority that is. Decentralization of responsibility is not a natural act. That requires intention and design. Many academic leaders will say that authority lies with the faculty in departments and schools, and most responsibility lies with central administration. In many universities today, this state still obtains yet is more often lamented than addressed and managed. Increasing numbers of institutions, however, are making explicit efforts to address such imbalances, to design organizational structures and incentives to make responsibility commensurate with authority, wherever that authority lies.” (Jon C. Strauss and John R. Curry, “Responsibility Center Management – Lessons Learned from 25 Years of Decentralized Management, NACUBO Publication, 2002)

M. Porter, Harvard University, on decision making:

Deciding what to do – tough.

Deciding what not to do – tougher.

Deciding what to stop doing – toughest.

Introduction

The Budget System Review Committee (BSRC, see Appendix A for membership) was charged by Provost W.A. “Bud” Baeslack III and Chief Financial Officer John Sideras on October 15, 2009 to assess how effectively the CWRU budget system supports the strategic plan, aligns resources for optimizing programmatic and overall institutional excellence, and provides funding for services essential to support these objectives. Based on outcomes from this assessment, the BSRC was asked to identify and recommend specific strategies and actions to improve the University’s budget system as needed.

This initiative was identified in the Strategic Plan (“*Forward THINKING*”) under Goal IV as a means to “*strengthen institutional resources to support the University’s mission*”. It was also included as a priority in the FY10 Action Agenda for implementing the Plan during this current fiscal year.

“In order to promote an environment that encourages and facilitates interdisciplinary activity, the University must identify best practices to conduct business and to eliminate roadblocks to collaboration and success.” It should be noted that in this report interdisciplinary is referenced as cross-School, as within a College/School (the term School will be used from this point) many academic interdisciplinary activities proceed flawlessly.

The Provost and CFO were clear that they would share the BSRC recommendations with the Deans, President’s Cabinet and Faculty Senate Budget Committee for discussion prior to implementation.

The completion of the University strategic plan has focused attention on initiatives to enhance programs and reputation, improve student life, and explore nationally competitive research areas for future growth potential. Investments are required from both the University and Schools to **launch** and **sustain**

these initiatives. The BSRC has been tasked with identifying options for modifying the budget system in order to produce central resources for funding new initiatives and particularly, to address ways of reducing barriers to cross-School initiatives engendered by the existing structure, including those identified by the Alliances. In order for the University to compete in the 21st century, it is important to bridge historical agendas and silos where it makes sense, and new initiatives are one area where this may offer an opportunity.

BSRC Timeline and Process Description

The BSRC met almost every week for at least two hours from mid-October through mid-May. Each member was provided with a notebook that included the FY10 operating budget, comparative historical data on the Schools, information on the revenue and expense allocation rules (Appendix B), information on benchmark schools, selected readings on Responsibility Center Management (RCM) and hybrid budget models, and a copy of “Responsibility Center Management Lessons from 25 Years of Decentralized Management”, a NACUBO publication written by Jon C. Strauss and John R. Curry, pioneers in implementing RCM systems at the University of Southern California and the University of Pennsylvania.

The Office of Financial Planning and Budget prepared a tutorial for the BSRC on how the allocation rules work. Once the members were comfortable with their understanding of the complexities of the allocation methodologies, they developed a set of common questions (see Appendix C) for the Deans of each School to address, focusing on how the budget system affects their ability to achieve their vision, take risks and invest in collaborative initiatives. The Deans were also asked about their perceptions of the current system’s fairness and their opinions of RCM. The issue of whether or not individual Schools are duplicating or extending central services was an area that received significant attention. The BSRC reserved time after each meeting to reflect on the implications of what was presented. Several common themes emerged:

- lack of engagement of School Deans in the strategic decision making process
- budget constraints affecting six of the eight Schools
- desire for adequate time to respond to changes
- failure to connect University strategic plan initiatives to a financial plan
- lack of a coordinated and documented decision-making process

Once the meetings with the Deans were completed, the BSRC met again with the CFO to discuss the current budget process (policies and procedures as distinct from the allocation rules). The BSRC also had a second meeting with the Provost to apprise him of their progress.

At the end of February, the BSRC developed an outline of the final report and assigned the initial preparation of the various sections to subcommittees. The entire group came back together in mid-

March to start the process of integrating and refining the various parts of the report before sending a final draft to the Provost and CFO for comment in mid-May.

Executive Summary

Early in the review process, the BSRC concluded that simply modifying income and expense allocation rules would not produce a sustainable budget model, let alone one that would support the cross-School endeavors emphasized in the strategic plan. The group identified the need to articulate a philosophy that creates the capacity for making the hard decisions that will allow for the redirection of resources to build focused programs of quality and distinction. Indeed, the desire to link new or continuing proposals directly with cost expenditures was stressed. Such linkage should be incorporated in a set of consistent written policies and procedures that outline a multi-year budget process, tied to the strategic plans of the University and the Schools, and that provides for engagement of all parties in critical decision making. This philosophy also should be used to inform the performance reviews of Deans and senior administrators.

Allocation Rules. The BSRC considered possible improvements in the methods used to distribute the costs of centrally provided administrative services among the constituent parts of the University and whether the constituent parts of the University functioned so as to erect barriers to collaborative efforts. Members of the BSRC agree that there are indeed imperfections in our budget system that need to be addressed, and has recommended ways to reduce barriers between the constituent parts and increase collaborative efforts in research and education. The Committee is aware that the central leadership would like to persuade the Schools of the necessity to make more revenue available for the support of strategic objectives. While the BSRC is generally supportive of this objective, it recommends that the University undertake steps outlined in this report as a necessary precursor to moving forward on this objective.

Central Services Budgeting. Historical budgeting for central services must be replaced with a framework that allows for the identification and evaluation of core functions and their related costs. This should incorporate a rolling review cycle that provides opportunities for “customer” feedback. We applaud the initiation of the review of central services beginning with ITS and purchasing/procurement and recommend that this process continue across all central services. However, central service providers need incentives to be efficient as well as responsive and valued resources to the Schools. They should be held to a competitive standard.

Plans for discretionary spending by any central service area should be reviewed annually by a **Central Budget Committee** (see page 7). Each unit should be reviewed against established performance metrics and budget adjustments should be made on current services based on efficiency, desirability of their service by the ‘customers,’ and competitiveness. With a multi-year financial plan, each service area would have to make a case to the Schools for the added value of any proposed new project and solicit input at least a year in advance of the intended implementation. As part of this process, the central

leadership must articulate whether a new or expanded initiative would be funded by an increase passed on to the Schools or covered by a reallocation from a central activity that is no longer a priority. This formalization of the process will allow the Schools to evaluate their needs and avoid the duplication of various central services. The independent evaluation of the efficiency of central services that are funded from taxes on the Schools will increase the acceptance of these charges. One attractive incentive is the possibility of using the savings derived from central efficiencies for Provost's discretionary funds in the short term. A savings of 0.5% of central expenditures was considered as feasible in the initial round of review.

Funding New Initiatives. The BSRC has been tasked with identifying options for funding new initiatives centrally and with addressing the reduction of barriers to cross-School initiatives, particularly those identified by the Alliances. The decentralized university structure may result in silos each with their own objectives that are difficult to bridge. The University strategic plan focused attention on initiatives to enhance programs and reputation, improve student life, and delve into nationally competitive research areas for the future growth. Investments are required from both the University and Schools to launch and sustain these initiatives. In light of financial limitations as well as faculty energies, it is clear that the University cannot and should not continue to add/expand academic or administrative programs that require significant University support without the elimination of others that are not meeting expectations (i.e., a "sun-setting" component should be incorporated in all programs, current and future). A full and responsible discussion of "what will go" must accompany "what we will build". It is irresponsible to support new investments that simply result in the accretion of programs. Program review and resource reallocation at the University and School levels must become standard practice. This can be aided, for example, by using 0.5% derived from central efficiencies for the Provost's discretionary fund. Overriding principles for continued support of most programs should rest closely on the quality of student and faculty outcomes supported by meaningful metrics.

Central Budget Committee. The opinion was unanimous that a University Budget Committee (UBC) was needed to serve as an anchor for a robust financial planning and decision making process. This group would act in an advisory capacity to the President and Provost and be responsible for reviewing multi-year revenue and expense projections as well as business plans for launching new programs and sun-setting others. The UBC would also be charged with the periodic evaluation of the rules governing the allocation of central costs to the Schools. This would go a long way in establishing the type of transparency desired by the Schools and ultimately result in enhancing the credibility of the process.

Key Recommendations

Summary of the Committee's Findings and Recommendations

- **Allocation Rules.** The BSRC recommends the University undertake steps to enhance the financial decision making process as a necessary precursor to moving forward to make more revenue available for the central support of strategic objectives.

- **Central Services.** The review of central services should continue across all central services to ensure that they are held to a competitive standard.
- **School Budgets.** Review in order to rebase and/or eliminate duplicate expenses or services
- **A Central Budget Committee (University Budget Committee)** should be established to coordinate financial decisions at the University. Formal financial planning processes, multi-year budgeting and considered review of issues that affect budgeting made in a regular and predictable period.
- **Funding New Initiatives.** The University cannot and should not continue to add/expand academic or administrative programs that require significant University support without the elimination of others that are not meeting expectations (i.e., a "sun-setting" component should be incorporated in all programs, current and future). Moreover new initiatives should have a clearly identified cost-benefits analysis. This is critically important as program, faculty and student quality should be driving decisions for new initiatives.
- **Subvention.** Subvention currently supports both deficit programs at schools and cross-school initiatives. Subvention should not be used to underwrite decanal deficits in the Schools. New proposed use of subvention funds, in particular, should require active support by stakeholders
- **Source of Subvention Funds.** The source of subvention funds for central programs are the revenue centers, i.e. the academic units, or savings in operating (i.e. central administration). A formula incorporating blended revenues of tuition, indirect cost recovery and unrestricted revenue sources is needed after right-sizing the subvention pool.
- **Research Indirect Cost Recovery and Distribution.** A University-wide policy dealing with overhead recovery rates and rules for distribution needs to be developed for application to the major financial stream, extramural research grants, which should eliminate financial barriers that prevent cross-School initiatives, programs, academic and pedagogical training
- **Undergraduate Tuition.** The BSRC supports the current 85%/15% allocation rule. The 15% should be directed to the School administering the major rather than the unit granting the degree (if different)
- **Graduate Professional and Non-Professional Tuition.** These tuition allocations should provide appropriate incentives to faculty, programs, departments, and Schools, and encourage the development of cross-School initiatives and be distributed similarly to the undergraduate tuition.
- **Unrestricted Endowment.** The rules governing the allocation of the income from the Shared Funds should be reviewed with respect to fairness and compliance with the terms of the funds.
- **Headcount.** A change in the current method to allocate cost per faculty is recommended.
- **Exemptions for Calculating University Services Charge.** The BSRC recommends that equipment, capital expenditures, charges for patient care, rental costs and the portion of a subcontract in excess of \$25,000 be excluded. It also recommends continued use of the two year moving average.

Details of the Deliberations Leading to the Committee's Findings and Recommendations

1. Financial Planning and Decision Making Processes

It quickly became apparent to the BSRC that the University does not have an effective, institutionalized strategic financial planning process. Currently, components of the budget emerge from seemingly unconnected decisions that are not necessarily integrated with respect to the broader implications of these decisions. Further, from the School perspective, budget targets are frequently made available only after allocations have been determined, leaving Deans to play a responsive rather than an engaged role. The current process does not meet the need for engagement of the Schools or other stakeholders in how strategic decisions are made. This is apparent especially with respect to central expenses and new initiatives (i.e. internationalization), but also appears to operate at the School level. Since the completion of the strategic plan, the annual Action Agendas flowing from the annual Leadership Retreat and Plan Action Committee (Deans, VPs, student leadership) have helped to inform the campus of new initiatives. However, the Action Agendas do not provide a financial assessment and commitment with respect to sources of support. Furthermore, they do not indicate what programs would be phased out. Periodic discussions between the Provost and Deans (Deans' Council) have not been adequate for strategic decision making, and the current charge and design of the Faculty Senate Budget Committee is not appropriate for the task.

A formal financial planning process needs to be created. Multi-year (e.g., three-year) financial plans are an essential component of an integrated and prudent financial management scheme. Deans, their financial officers, and the Provost must be engaged in structured, repeated strategic financial planning activities throughout the year. This process should address proposals for new initiatives from Schools and central services as well as School-specific dis-investments and re-investments. The process needs to involve all parties in active decision-making rather than simple consultation. New strategic initiatives (accompanied by financial plans) must be proposed with sufficient lead time before the anticipated implementation to allow for all groups to provide input and prepare. For instance, a proposal to add expenses related to a central International Affairs effort should be fully vetted prior to becoming part of the central operating budget allocated to the Schools in FY12 (Appendix E gives the timelines for the current implementation with a sample process under the procedure suggested in this report). Indeed, this process should have occurred during FY10.

The BSRC discussed at some length the challenges facing University leadership as it endeavors to improve existing programs while also fostering the creation of new multi- and cross-School initiatives. Members recognize that serious resource constraints confront the University as it moves to implement the University strategic plan. Given these constraints and the imperatives of the Plan, the prudent way for the University to manage a program of strategic investments is to emphasize financial planning at every level (departmental, School, and central), and to require a greater degree of coordination among all financial planning efforts.

The BSRC recognizes that the financial position of some Schools is so poor and the incentives for risk taking and entrepreneurialism are so weak, that it is difficult for Deans, and for the Provost, to promote change. Several Schools have been able to assure balanced budgets only by using accumulated balances (five of eight for FY11). Others (viz., Engineering and Medicine) have structural deficits that require consistent subvention from the University. The BSRC is concerned that Schools facing persistent deficits may not be fully committed to doing what is necessary to improve their bottom line if the only benefit of their politically arduous efforts is a reduced deficit. Structural deficits thus amount to an obstacle to thoughtful planning and strategic and/or entrepreneurial programs.

The absence of discretionary funds at both the School and University levels is a significant additional impediment to needed investment in both existing and new programs. The University must consider carefully how to secure the funds needed to provide permanent budget adjustments (e.g., budget re-basing) for some Schools, while making available funds for new initiatives with outstanding potential. The BSRC recognizes that the solution to this problem is unlikely to be found solely in the form of new resources. It strongly recommends that both the Deans and the Provost evaluate existing programs and eliminate those that have outlived their usefulness or failed to achieve their potential. Increased emphasis on planning should include the development of carefully designed, faculty-based processes for the periodic evaluation of existing academic programs and research institutes and centers. The explicit goal would be to make carefully targeted cuts in order to free up resources for new investment. Such evaluations need defined metrics and their associated budgetary implications for identifying successful or failing programs.

Integrated Strategic Planning. Discussions of the BSRC with Deans and (often) their chief financial officers about the financial and academic situations of their Schools indicated that the quality of management decision making—and the emphasis placed on planning—varies from School to School. The leadership of some Schools had a clear idea of their objectives and a willingness to redirect resources to build on strengths and exploit opportunities. Other Schools might benefit from more involvement with the Provost in analyzing options to enhance School performance.

In evaluating the performance of Deans, the Provost should place emphasis on the quality of a Dean's strategic thinking. Deans should be pushed to evaluate whether the current set of commitments constitute the optimal use of School resources in light of the objectives of both the School and University strategic plans.

The BSRC further recommends that an effort be made to better integrate the various types of planning at the University level. Capital planning ought to be better integrated with academic planning; staffing plans ought to follow from operational and capital planning; the full long-term financial implications of major projects (building a new student center, for example) ought to be carefully estimated well in advance of beginning the project.

To accomplish integrated planning of this kind, the University will have to develop multi-year financial models of the type not now in use at the University level. It should also develop methods for modeling

the potential costs of proposed multi-disciplinary and cross-School initiatives. The BSRC recommends that the outcome of this effort be a fully developed, multi-year plan for executing the University strategic plan.

Tools for Planning. Progress toward improved planning will not be easy given the current state of budgeting, financial reporting, and financial analysis tools at CWRU. The BSRC recommends modest investments that would facilitate the strategic management of School and University resources if they would yield significant improvements in management control.

2. Charge to a Central Budget Committee

The BSRC (including members of the FSBC) recognizes that the existing FSBC, as now organized and charged, is not performing the role of the recommended **Central Budget Committee**. This proposed new University Budget Committee (UBC) is provided for in the University Constitution. The charge of the UBC would be to meet regularly throughout the calendar year for candid and confidential discussions and recommendations regarding key components of the budget:

- faculty and staff salary guidelines
- fringe benefits
- endowment payouts
- non-salary budgets
- cost allocation formulas (and the budgets of central units)
- tuition rates
- financial aid policy
- enrollment targets
- federally sponsored research projections
- major institutional capital investments
- new centers and institutes
- rebasing of the School budgets

The goal would be to evolve a better method for deciding among competing institutional priorities in a resource-constrained environment, and to make recommendations to the President and Provost that represent an informed consensus regarding the best use of institutional resources. Although the UBC would be advisory, it would operate with the expectation that its inputs would be given serious consideration by the senior administration. Since the Provost has ultimate budgetary authority, the UBC should be chaired by a senior member of the Faculty. The UBC would benefit from the regular involvement of other senior academic and financial administrators. The membership would be drawn from each School and from the central administration and the final size should be manageable (no more than 12 members).

Preparations for the work of the UBC would begin in the summer with the appropriate staff members developing recommendations and/or budgets (depending on the topic) for the coming fiscal year. For the first year of the UBC, beginning in early September and continuing through the fall semester, presentations by School Deans or Vice-presidents of Central Services would be made to the UBC regarding major issues. Those presentations would include programmatic priorities and financial requirements for the coming three years. This would be, in essence, a three-year budget including the current year's budget and financial outcomes from the previous year. Such presentations should explain how the unit plans support the University strategic plan. The goal would be to complete these discussions by late winter, in time to make recommendations to the President and Provost regarding the coming year's budget.

3. Allocation Rules

A. Research Indirect Cost Recovery and Distribution

To resolve potential barriers to cross-School research collaborations, a University-wide policy needs to be developed for rules for distribution of overhead recovery from extramural research grants.

Distribution of Funds. Indirect cost recovery (i.e., ICR or "overhead") are funds received by the University as reimbursement for costs not directly identified with any particular grant or contract. These costs are not assignable to any one project, but are the expenses of conducting research, instruction, and other sponsored activities across the campus (costs primarily related to facilities and administration). These funds are generated by the grants and contracts awarded to academic and research staff. The University treats these funds as unrestricted income, while the direct costs (e.g., salaries) charged to a grant or contract are classified as restricted expense (usually under research and training) supported by restricted income.

ICR distribution should be closely linked to sponsored research expenditures in the Schools where the researchers who generated the awards reside. A distribution of the ICR to those who generate it would provide strong incentive to participate in local as well as cross-School initiatives. While the discussion below emphasizes return to the School, a clear benefit must pass on to the department and/or investigator.

Some costs, for equipment and patient care are "pass through" and should not be counted in ICR calculations. Pass-through funds are distributed to a primary recipient and subsequently passed through to another organization that actually performs the program for which the funds are provided. Since there is no measurable involvement by the primary recipient in the expenditure of the funds, the BSRC recommends adopting a "Modified Total Direct Cost" (MTDC) that removes these pass through costs from the base for ICR calculations as is common practice in many other universities.

The MTDC base should result in each award bearing a fair share of the indirect costs in reasonable relation to the benefits received from the costs. For example, the ICR from a "generic" federal research

grant should be distributed back to the academic unit according to the faculty member effort, the space in which the research occurred (should receive the facilities portion) and some recognition of departmental administrative cost. Current arrangements that do not return “de minimus” IDC for salary-only contributions have not supported collaborative interactions and should be changed.

Consistent Rates. The need for a standard indirect cost rate policy, particularly reflecting non-federal sources, is a much larger challenge for the University. The University negotiates its federal IDC rates and these rates apply to all federal grants during that period. The current on-campus federal rate is 57%. However, rates for other non-federal sponsors are far more variable and open to negotiation.

The BSRC recommends that the University require federal rates be used for all externally sponsored projects, but allow waivers under certain circumstances. Waivers should not be granted to any for-profit organization, or any office or agency of a foreign government. A waiver of ICR should not waive infrastructure charges on the expenditure of research dollars. Exceptions to the federal indirect rate are likely to be provided for non-profits (foundations/societies/associations) as well as State and local government agencies that have established standard rates. These organizations and their generally applied policies will be reviewed and accepted in limited circumstances (Appendix D).

One special case relates to research performed by faculty of the School of Medicine that includes clinical trials. Other universities have established minimum ICR’s for clinical trials, industry, and non-academic space. As is delineated at most institutions, the BSRC recommends if a department accepts a contract below the minimum negotiated rate, it will pay the difference.

B. Undergraduate Tuition

The BSRC supports the current 85%/15% tuition allocation rule (85% to the School providing the instruction and 15% to the School granting the degree). This policy should be consistently applied. The 15% “administrative” component for recruiting and mentoring undergraduate majors should be retained in the School that performs this activity, which may not be the School that grants the degree. Implementation of this change will affect Economics, Biochemistry and Nutrition and result in lost income for the College of Arts and Sciences and should be phased in over a three-year period. A logical outcome of this change is that any School may develop exciting and nationally competitive undergraduate majors and engage broader faculty representation in teaching undergraduates.

Ultimately, tuition allocation back to Schools, departments or interdisciplinary programs should reward those attracting, retaining, and teaching high quality students. In some cases, existing programs or departments that attract and teach large numbers of students are not rewarded with adequate reinvestment in faculty or facilities (i.e., Biology). This is where hard decisions are needed with respect to program review and reallocation of resources.

C. Graduate Non-Professional Tuition

Graduate, non-professional (GNP) tuition allocations should similarly provide appropriate incentives to faculty, programs, departments, and Schools, and encourage the development of cross-School initiatives. Students should have the opportunity to broaden their studies as appropriate, and in consultation with their advisors.

Under current University policies, all GNP tuition goes to the School/program in which the student is enrolled, regardless of the unit providing the teaching faculty. In a number of existing and proposed cross-School programs, Deans have worked out special agreements for transferring tuition revenue as appropriate. Where such agreements are already established, particularly in the case of a joint degree, these arrangements should be regularly reviewed to determine whether they need to be changed to conform to the newly developed practices. To increase options available to students, as well as the perceived quality of the experiences available to them, we need straightforward, consistent tuition allocation rules to reduce roadblocks to new opportunities. In general, the BSRC assumes that GNP tuition cost will become standard across Schools. The change would be implemented in FY12 with no transfer of funds for one year so that appropriate budget adjustments for FY13 can be accommodated. The recommendations that follow describe two scenarios with a methodology similar to that used for undergraduate tuition.

Occasional cross-School graduate student enrollment When students register for such a class (assuming space is available and they satisfy appropriate prerequisites), the School in which the "base course" is taught would receive 100% of the student's tuition paid by the student's home program. (The "base course" as used by the Registrar's Office identifies the home of the faculty of record for the course.). This financial arrangement encourages students to take the most exciting, relevant course for their study, and creates incentives for faculty to engage a broad group of students.

Students enrolled in identified cross-School graduate, non-professional programs.

Degree-granting programs with required courses in more than one School could set their own tuition rates. Tuition would be distributed 85% to the School in which the base course is taught and 15% to the School administering the program. One example is associated with the Biotechnology Entrepreneurship program in which an accounting course is taught by Weatherhead. In this case, 85% of the relevant tuition would be distributed to Weatherhead and 15% to the College of Arts and Sciences. This arrangement would facilitate the initiation and the development of cross-School programs.

D. Professional Tuition

As in the case of graduate non-professional tuition, the tuition for professional students should go with the "base course". Since tuition in the professional Schools is set independently, the distribution of revenue may be unequal when a student from one School takes a course in another School. However, this difference in tuition is likely to be limited and is a small price to pay for implementing a standard expectation of costs and revenue for cross-School programs. This does not imply a need to dismantle

any agreements already in place, but to inform and constrain future agreements while providing a basis for reviewing current agreements.

E. Unrestricted Endowment

The rules governing the allocation of the Case Institute of Technology (CIT) unrestricted endowment income, and the income from the Shared Funds (includes Squire) should be reviewed with respect to fairness and compliance with the terms of the funds. Currently the income from the CIT accounts is being split 50/50 between Engineering and the College. The Shared Funds are being distributed to Engineering, the College and Weatherhead based on share of undergraduate credit hours taught. This is an example of a task that a University Budget Committee should examine.

F. Headcount

A change in the current method to allocate cost per faculty is recommended. While many current formulas appear appropriate, some changes should be implemented. During FY07 effort went into linking University service allocation rules to some reasonable measure of resource use. Questions of fairness arise, however, in formulas using headcounts of faculty and staff to allocate certain ITS and Library expenses. In particular, adjunct faculty counted on the same basis as full-time may artificially inflate the measure of a School's need for some types of shared resources. In some Schools, such as Medicine, faculty headcounts are inflated by the inclusion of individuals who perform few direct academic functions or who are located at auxiliary sites. These distinctions of faculty headcount are difficult to adjust with current PeopleSoft programming constraints.

G. Exemptions for Calculating University Central Services Charge

The University Central Services charge to a School is based on that school's share of total direct costs (TDC, unrestricted and restricted). Using the same logic that certain costs in research grants are not subject to overhead charges, these same costs should also not be incorporated in the formula that determines the level of University Services required by a School. For all Schools, the BSRC recommends that equipment, capital expenditures, charges for patient care, rental costs and the portion of a subcontract in excess of \$25,000 be excluded and a MTDC base used in place of the current TDC base.

4. Subvention

“With subvention, presidents and provosts can compensate for the wide disparities in unit costs of different academic programs of equivalent quality (contrast business and engineering, for example) that typically charge the same tuition unit price, or receive the same per-student state support. More important, though, are incentives which reward the development and execution of sound academic plans with allocation of subvention in proportion to plan success and consonance with the mission of the institution. This issue of forging and holding the center – assuring achievement of institutional as well as local goals, thus making the whole greater than the sum of the parts – is a core concern about

RCM, about which more follows. Still a third use of subventions is provision of start-up funds for promising new academic ventures.” (Jon C. Strauss and John R. Curry, “Responsibility Center Management – Lessons Learned from 25 Years of Decentralized Management, NACUBO Publication, 2002)

In general, subvention money comes from “taxing” the academic units. For example, a central subvention pool for re-investment is already in place at CWRU, as the President/Provost Investment Fund (\$1.5M) is included in the University Services charge. In addition, subvention also occurs using central funds to bolster an individual School in deficit. For CWRU, identifying the source of subvention funds will be critical, along with the political will to balance the tensions between the short-term needs and the longer view. Any increases in the “tax” to the Schools will need to be phased in to allow them sufficient time to plan accordingly. Despite best efforts, there is suspicion surrounding the current budgeting process, and misunderstanding of the decision making process used in the current model. For an RCM model to work effectively at CWRU, the issues of transparency and shared responsibility need to be dealt with from the outset. Employing the University Budget Committee to approve both current budgets and new investments that use subvention tools will insure annual review.

Source of Subvention Funds. The only source of subvention funds for central programs are the revenue centers, i.e. the academic units, or savings in operating (i.e. central administration). Subvention is used in many budget models to create flexible income for both central services allocation as well as cross-School strategic initiatives. Some models apply a flat tax on unrestricted revenues. Some models tax only tuition and indirect costs. Specific, equitable formulas can be developed after the appropriate size of a subvention pool, as well as centrally-supplied services, have been determined. The BSRC recommends taxing unrestricted revenue sources for subvention income (to include tuition, indirect cost recovery, unrestricted endowment and unrestricted gifts) because it is fair.

The Committee urges re-basing of School budgets to understand the “balanced” budget from which they work. Subvention already occurs to correct financial issues that routinely incur substantial deficits in some Schools (e.g. Engineering). Current subvention from central back to the School needs to be identified within these budgets. A Dean receiving subvention funds should be required to specify cost reductions and/or new sources of revenue. Re-basing should include a serious look at programs or activities that should be discontinued (“sun-setting”). We recognize that the School of Medicine is in the process of planning for a “balanced” budget.

The bottom line is that continued deficits, based on structural issues, give the Deans of Schools in deficit little ability to make strategic investments, even when they are improving their revenues and decreasing their expenses. Additionally, there are few financial incentives for these Deans to continue to make the hard decisions to eliminate budget deficits. In return for current subvention, Deans should be required to plan for expense reductions, efficiencies and additional revenue sources as needed to make “hard decisions.” This requires the Deans and President/Provost to agree on fiscal and academic standards. The duration of current subvention should take into account the timing of changes made in other areas (e.g. head counts for central services, allocation formulas). Nevertheless, the duration must be defined

now or the structural deficits will continue unabated. Following budget re-basing, subvention will only be used to support extraordinary circumstances for units failing to meet their budgetary targets. In general, subsequent repayment of such covered deficits will be necessary.

Central Subvention Pool for Investments. The central subvention pool for investments will be used by central administration to support cross-cutting programs, for example, those developed through implementation of the University strategic plan. The BSRC identified clearly that the current University strategic plan, while admirable, will remain just a plan unless there are financial resources identified and committed to support it. Application to the Central University subvention pool, for cross-School activities (research institutes, centers, academic programs, internationalization) will require definite financial plans for evaluation and sustainability. The intent of the new initiative subvention pool is to provide incentives (both programmatic and financial) to reduce the current barriers to interdisciplinary work and to promote cross-cutting university programs. Well-articulated plans for sustainability should be a critical factor in awarding subvention funds

Principles of Subvention Use. When a School obtains subvention, it must be responsible for its financial, as well as its academic performance. Provost forgiveness of decanal deficits constitutes a “moral hazard”. Instead, School Deans and faculty must be required to identify the means to improve financial performance while maintaining (at a minimum) and improving (where possible) the quality of research, education and service. Subventions need to be made to support strategic cross-School initiatives that cannot be accomplished at the School level. University subvention is not intended to replace entrepreneurial approaches taken within Schools and departments. Subventions are intended to provide incentives for cross-School programs, not to replace or interfere with current successful collaborations.

Next Steps

- Discuss with Provost and CFO
- Discuss with President (President’s Cabinet)
- Discuss with Deans
- Discuss with Faculty Senate Budget Committee
- Implementation

Appendices

- A. BSRC Members
- B. Matrix of Current Allocation Rules
- C. Questions for Deans
- D. Web References
- E. New Initiative – from Pilot to Operating Budget

APPENDIX A

Budget System Review Committee Membership

Final 9/23/09

Julia Grant* Associate Professor and Associate Dean, Weatherhead School of Management, and
Chair of the Faculty Senate Budget Committee
Alan Levine Professor, School of Medicine, and Chair-Elect of the Faculty Senate
Sandra Russ Professor, College of Arts and Sciences
Christopher Cullis Professor and Chair, Dept. of Biology, College of Arts and Sciences
Elizabeth Madigan* Professor, School of Nursing
David Biegel* Professor, Mandel School of Applied Social Sciences
Gerald Saidel* Professor, Case School of Engineering
Dominique Durand Professor, Case School of Engineering
Alison Hall Professor, School of Medicine
Kristin Victoroff Associate Professor, School of Dental Medicine
Wilbur Leatherberry Professor, Law School

Ex Officio:

Christine Ash VP for University Planning and Institutional Research
Donald Stewart VP for Financial Planning

*Indicates Faculty Senate Budget Committee Experience

APPENDIX B – See Attached Matrix

APPENDIX C

Questions for College/Schools

11/25/09

1. Over the last five years what has been the impact of the University budget system on the ability of your College/School to achieve its vision, mission and strategic goals, in support of the university and school-specific Academic Plans?
2. How does the University budget system impact your level of risk taking? Do you have the level of flexibility needed to handle unplanned events (e.g., enrollment changes, research climate changes, utility costs)?
3. As you seek to facilitate the development of interdisciplinary and multidisciplinary educational and research initiatives, and university-wide Alliances, what specific aspects of our budgeting and other resource allocation methods seem to you to pose the biggest obstacles?
4. How do you think the University budget system can be adjusted or improved to be more supportive of the academic goals of the University and your College/School?

5. What aspects of the University revenue and cost allocations do you consider to be unfair or arbitrary and that have a particularly negative impact on your budget?
6. Are you duplicating or extending other central services and/or College/School academic functions? If yes, which ones and why?
7. How do you feel about a Responsibility Center Management (RCM) model which would direct more funds to central for strategic initiatives and/or subvention to the College/Schools?

APPENDIX D

Web References

<http://rph.stanford.edu/3-10.html> Stanford Indirect Cost Waiver policies

http://med.stanford.edu/rmg/clinical_trial.html#CTIDCrate Stanford clinical trial IDC rate Nov 26, 2009

http://www.osp.emory.edu/links/policies/F&A_waiver.pdf Emory **Facilities and Administration (Indirect Cost) Definition and Waivers**

<http://ora.ra.cwru.edu/ospa/Caseinfo.pdf> Commonly Requested Information, CWRU federal rate

https://finweb.mc.vanderbilt.edu/AcadRes/GiftsGrantsCont/AcadRes_IndirectCostGuide.pdf Vanderbilt rate for clinical trials

http://www.policy.umn.edu/Policies/Research/COST_RATES.html F&A rates, University of Minnesota

APPENDIX E – Not Complete

APPENDIX F

New Initiative – from Pilot to Operating Budget

International Affairs Timeline (Actual and Projected)

June 2008	University Strategic Plan GOAL I Advance our academic programs to increase the University's impact 3. Enhance the international character of the University
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February 2009	Strategic Planning Leadership Retreat Plan Action Committee (PAC) Meeting
Spring 2009	FY10 Action Agenda
May 2009	Vice Provost for International Affairs Appointed Supported from Provost Investment Funds Established International Advisory Council
January 2010	Workshop to launch Strategic Planning Process Guidance from American Council on Education
April 2010	Status Report – Dean’s Council
Budget FY11	Continued support from Provosts Investment Funds
Summer 2010	Presentation of Business Plan to University Budget Committee Revenue/Expense Assumptions Five Year Projection (FY10 – FY14) Impact on Schools
Fall 2010	Approved for Inclusion in FY12 Operating Budget

International Affairs Timeline (Under New Budget Oversight System)

June 2008	University Strategic Plan GOAL I Advance our academic programs to increase the University’s impact 3. Enhance the international character of the University
XXXX	Strategic Planning Leadership Retreat Plan Action Committee (PAC) Meeting Deans agree to Initiative in principle with an estimated long term cost to be added to the Operating Budget in FYAA
XXXX	Inventory of University resources for International Presentation of Business Plan to University Budget Committee Revenue/Expense Assumptions Five Year Projection (FY10 – FY14) Impact on Schools Deans agree/accept mission and funding of Vice Provost for International Affairs

FYAA Action Agenda

XXXX	Vice Provost for International Affairs Appointed Supported from Provost Investment Funds FOR 2 YEARS Established International Advisory Council
XXXX	Workshop to launch International Activities Strategic Planning Process Guidance from American Council on Education
XXXX	Status Report to Dean's Council
Budget FYBB	Continued support from Provosts Investment Funds
XXXX	Approved for Inclusion in FYCC Operating Budget

National Research Council Doctoral Program Rankings

Notes on Methodology

The methodology used by the NRC is considerably more complicated than the approach used by other ranking bodies, such as *U.S. News & World Report*. Previous NRC assessments were criticized for being based too much on reputation. The methodology of the current study was refined to rely more heavily on quantitative, objective data and to better reflect the uncertainty associated with measuring program quality.

Instead of calculating a single rank per program, the NRC is using a statistical re-sampling technique to produce rankings that account for statistical error, year-to-year variations in metrics, and the variability of faculty ratings. The result of the NRC's methodology is a *range of possible rankings* for each program.

The NRC Methodology

Step 1: The NRC gathered raw data on measures of faculty productivity, student support and outcomes, and diversity from institutions, faculty, and external sources.

Step 2: The NRC asked faculty in each field to rate how important 20 characteristics are to doctoral program quality in their field.

Step 3: Statistical techniques were used to produce "direct," or explicit, weights for the 20 characteristics, based on the faculty importance ratings collected in Step 2. The NRC calls these "S" weights (for survey-based).

Step 4: The NRC surveyed a random sample of faculty in each discipline, asking them to rate a random sample of specific programs in their field.

Step 5: Statistical techniques were used to infer the "regression-derived," or implicit, weights that best predicted the faculty program ratings collected in Step 4. These are "R" (for regression) weights.

Step 6: Using a statistical re-sampling technique, the NRC ranked each program 500 times by applying both the "S" and "R" weights to 500 randomly adjusted sets of program values for the 20 characteristics.

Step 7: Each program's 500 "S" and "R" rankings were sorted in numerical order from lowest to highest.

Step 8: The NRC's final report publishes both "S" and "R" rankings at the 5th and 95th percentiles as the range of possible rankings for each program.

Because each program is ranked 500 times, the 5th and 95th percentiles represent the program's 25th best and 475th best rankings, respectively. A small number of rankings will be outside this 90% range.

Programs are ranked highly in the "S" rankings if they are strong in the criteria that scholars say are most important.

Programs are ranked highly in the "R" rankings if they have features similar to programs viewed by faculty as strong programs.

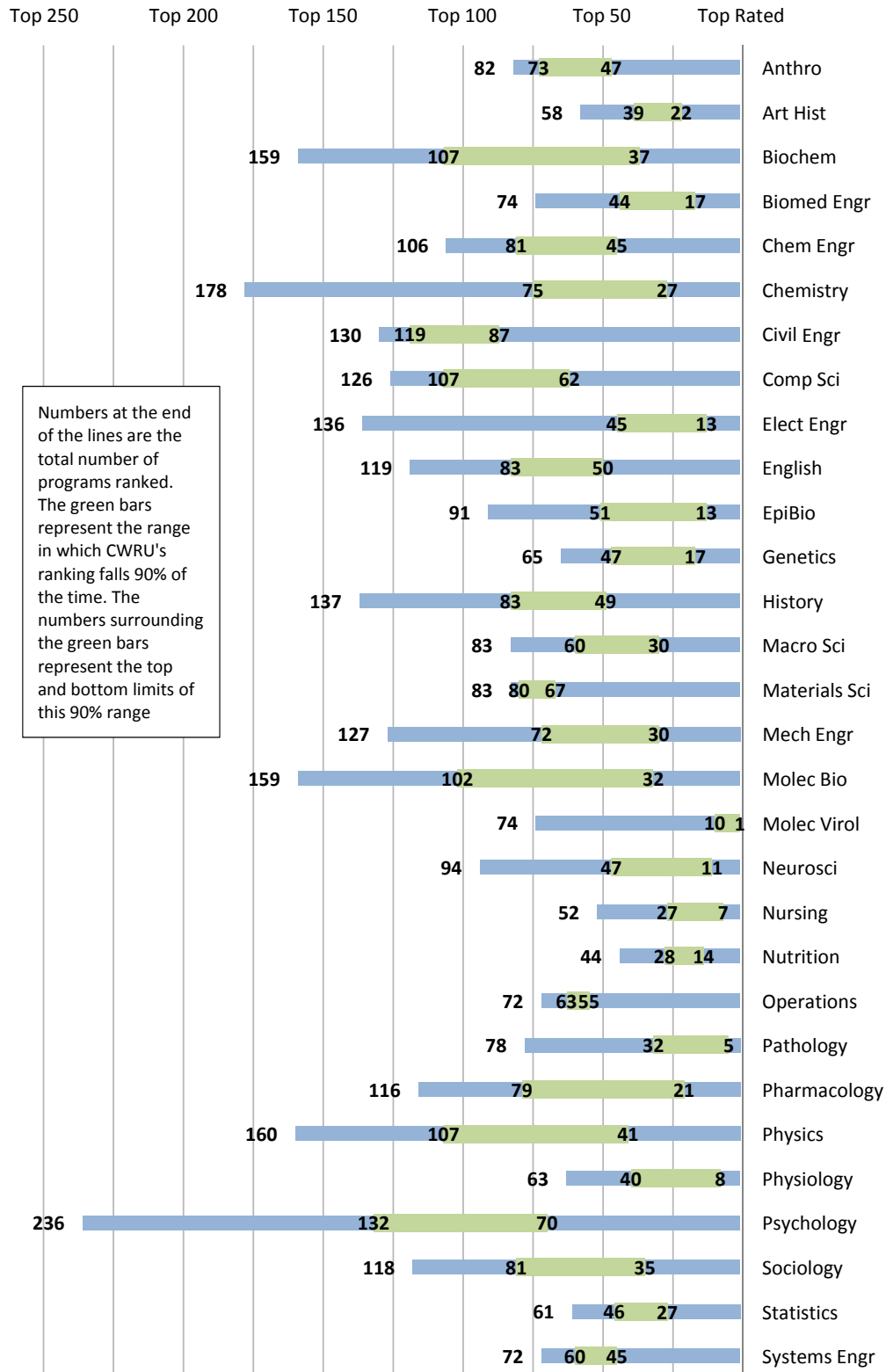
In addition to the "S" and "R" rankings, each program receives three "dimensional" ratings that highlight aspects important to doctoral education: Research Activity of Program Faculty, Student Support and Outcomes, and Diversity of the Academic Environment. These dimensional rankings are also ranges, with the report publishing the values at the 5th and 95th percentiles.

Ranges of Rankings for CWRU Programs Participating in the NRC Study

Program Name	R RANKINGS		S RANKINGS		DIMENSIONAL RANKINGS						# Progs Rated
	Regression-Based Weighting Method		Survey-Based (Direct) Weighting Method		Research Activity		Student Support and Outcomes		Diversity		
	5th	95th	5th	95th	5th	95th	5th	95th	5th	95th	
Anthropology	60	76	47	73	22	53	64	79	10	30	82
Art History	39	51	22	39	13	27	18	43	50	58	58
Biochemistry	39	74	37	107	43	127	107	151	83	126	159
Biomedical Engineering	6	18	17	44	18	55	23	58	35	61	74
Chemical Engineering	32	54	45	81	40	82	70	100	88	103	106
Chemistry	52	120	27	75	45	123	33	119	48	100	178
Civil Engineering	52	106	87	119	112	130	7	52	36	91	130
Computer Engineering	Not Ranked		Not Ranked		Not Ranked		Not Ranked		Not Ranked		20
Computing and Information Science	82	112	62	107	42	106	114	124	30	70	126
Electrical Engineering	23	57	13	45	7	25	120	130	113	132	136
English	88	112	50	83	37	69	39	86	38	81	119
Epidemiology and Biostatistics	23	71	13	51	13	63	59	80	26	45	91
Genetics	15	37	17	47	16	51	28	53	37	58	65
History	84	111	49	83	50	84	70	108	9	33	137
Macromolecular Science	22	43	30	60	17	53	11	49	41	66	83
Materials Science and Engineering	34	57	67	80	65	79	51	77	55	73	83
Mechanical Engineering	19	77	30	72	19	64	69	96	74	110	127
Molecular Biology and Microbiology	36	89	32	102	48	128	57	144	19	59	159
Molecular Virology	10	37	1	10	1	17	1	8	74	74	74
Neuroscience	22	43	11	47	10	57	16	66	3	12	94
Nursing	1	10	7	27	4	23	34	46	5	15	52
Nutrition	18	31	14	28	18	34	25	42	28	41	44
Operations Research	26	55	55	63	68	70	9	41	22	52	72
Pathology	10	34	5	32	7	43	19	54	34	59	78
Pharmacology	10	50	21	79	27	96	9	52	14	46	116
Physics	40	91	41	107	41	122	9	54	23	74	160
Physiology and Biophysics	4	32	8	40	7	42	22	48	49	60	63
Psychology	58	120	70	132	45	88	124	198	16	44	236
Sociology	65	115	35	81	19	55	91	108	97	115	118
Statistics	12	57	27	46	18	41	61	61	17	45	61
Systems and Control Engineering	14	48	45	60	28	56	62	68	62	72	72

Computer Engineering programs were not ranked because the total number of programs was too small.

Direct Weighting Method (S-Ranking) CWRU Programs Rated in the NRC Study



Numbers at the end of the lines are the total number of programs ranked. The green bars represent the range in which CWRU's ranking falls 90% of the time. The numbers surrounding the green bars represent the top and bottom limits of this 90% range

Regression-Derived Weighting Method (R-Ranking)

CWRU Programs Rated in the NRC Study

