

Academic Plan for the College of Liberal Arts and Sciences

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Mission and Vision for The College of Liberal Arts and Sciences

The College of Liberal Arts and Sciences is the academic core of the University of Connecticut. It is home of research and teaching across disciplines in the social sciences, humanities, life sciences, and physical sciences at UConn. It is the key to the University's mission to preserve, create, and disseminate knowledge by means of scholarly and creative achievements; undergraduate, graduate, and professional education; and outreach.

The faculty of the College belongs to 24 departments and a host of interdisciplinary centers, institutes, and working groups. Whatever their particular field of study, the faculty are committed to the University's four core values of innovation, leadership, global engagement, and diversity. The College is unique in its shared commitment to liberal education and to a broad spectrum of applied and, especially, basic research.

Basic research is research driven by curiosity and a desire to understand humanity and the world it inhabits. Basic research is the bedrock supporting our appreciation of humanity's cultural heritage, our grasp of the diversity of human social interactions, our ability to anticipate the future, and our ability to understand and manipulate the natural world. The faculty of the College understands that our ability to address the many profound social and technological challenges facing us rests on our commitment to and investment in basic research.

As expressed by the American Association of Colleges and Universities, a liberal education is an approach to learning that empowers individuals and prepares them to deal with complexity, diversity, and change based on both a broad knowledge of the wider world as well as in-depth study in a specific area of interest. A liberal education helps students develop a sense of social responsibility, as well as strong and transferable intellectual and practical skills such as communication, quantitative reasoning, and an appreciation for human diversity. The faculty of the College shares the belief that a liberal education is the best preparation for a life of personal happiness and success as we grow into a complex and unpredictable future.

A few statistics indicate the scope of the College at the University and demonstrate the larger institutional importance of accomplishing the goals outlined in this plan.

- **CLAS enrolls more undergraduates than all of the other schools and colleges combined.** Over 60% of UConn's undergraduates are enrolled in CLAS. At the regional campuses, 70% of undergraduate enrollment is in CLAS.
- **CLAS awards more undergraduate degrees than all of the other schools and colleges combined.** The Social Sciences division in CLAS alone awards almost twice as many undergraduate degrees as any other school or college at UConn. The other divisions (Life Sciences, Physical Sciences, Humanities), as standalone units, are of the same order of magnitude as UConn's School of Business; School of Engineering; and College of Agriculture, Health, and Natural Resources in terms of their production of undergraduate degrees.
- **CLAS enrolls 40% of the graduate students** at UConn, and **50% of the full-time graduate students.**
- **CLAS awards about the same number of doctoral degrees as do all the other schools and colleges combined.**

- CLAS had \$43 million in research expenditures in 2013, accounting for about a third of total Storrs expenditures. The Department of Psychology, the Life Sciences division, and the Physical Sciences division—which account for about half of the College's faculty—were responsible for \$40 million.

The Planning Process

During academic year 2011-2012, the Provost's office put out a call for proposals for cluster hires as part of the University's tuition-funded plan to increase the size of the faculty by 290 positions over several years. In response, the CLAS Dean's Office issued a wide-ranging call for proposals from the faculty, accepting proposals from departments, centers and institutes, and ad hoc faculty groups. The resulting proposals were shared on a Web page and discussed widely. Ultimately, the College chose to invest in a number of areas, including language and cognition, health and inequality, Asian studies, environmental science and policy, and genomics. These discussions and priorities served as input into our planning process, and the areas highlighted in our plan grow out of those initial decisions.

In the spring of 2013, in response to the Provost's and President's call to begin a formal academic planning process, the College convened an academic planning committee, whose membership is listed at the beginning of this document. The committee members were selected from departments across the College. Nearly every member of the committee had, in addition to their departmental affiliation, either a formal or strong informal relationship to an existing interdisciplinary program in the College. The committee met in May and June of 2013 and produced an initial draft report. This draft was shared with the faculty and discussed at a town hall meeting in the fall of 2013. After a round of revisions by the dean and associate deans of the College, a draft report was submitted to the university planning committee late in the fall semester of 2013.

During the spring semester of 2014, the University administration held a number of retreats to discuss the University academic plan, which was formally published in April of 2014. At that point, the CLAS Dean's Office assembled input from the University's plan and feedback supplied by the faculty over the course of academic year 2013-2014 and embarked on a final revision of the College's plan. That final revision was circulated once more to the faculty during the summer of 2014 and submitted to the Provost on August 1, 2014.

Paths Towards Excellence

Faculty Development

The faculty, staff, and students of the College of Liberal Arts and Sciences share a commitment to producing scholarly work of the highest quality. The long-term scholarly reputation of our faculty and the success of our students in their chosen fields are the ultimate metrics by which we judge our success. We share the desire to build a culture that honestly and respectfully evaluates the work of our students and faculty. At the same time, we recognize that individuals can contribute to the greatness of our University in many different ways, and we will be most likely to achieve our goals by finding ways to capitalize on the individual strengths of every member of our community.

At the heart of our long-term success is the productivity of our faculty, and we must find ways to support and encourage their top-quality work. We must continue to reflect on our hiring and recruitment processes to insure that we are offering positions at UConn to people who will make the most of the opportunities here and who will help to build an ever stronger and more diverse scholarly community.

Departments and interdisciplinary institutes will continue to improve their guidance and support for pre-tenure faculty to make sure that they have every opportunity for success. The CLAS Dean's Office can play a stronger role in supporting pre-tenure review of faculty by communicating a broader sense of high College standards and by promoting interdisciplinary work. The College and departments should carefully consider the tenure review process with a view towards sharpening it. Departmental committees and department heads should feel empowered to make ever more refined scholarly evaluations so that the CLAS Dean's Advisory Committee and the Dean can take pride in the quality of those assessments and support them, and so that promotion cases that reach the Provost's office from the College are models of high-quality scholarship as well as excellence in teaching. When candidates for tenure do not meet the high standards that we expect, the culture of the departments and the College should enable the difficult decision to deny tenure.

For faculty who are post-tenure, the culture of the College should continue to provide incentives and appropriate recognition for high performance. Recognizing the complexities of a long academic career, we should explore ways to take full advantage of all that our faculty has to offer. We will continue to cultivate social norms, and to employ, where necessary, administrative processes to provide opportunities that allow our entire faculty to contribute, in a constructive way, to the University's mission.

The College already has a set of documents outlining the professional responsibilities of our faculty and a formal policy that expects that all faculty contribute fully—so that, in practice, individuals who have over time become less motivated by research can contribute through additional teaching or service responsibilities. We will work to strengthen a culture that supports the fair and full implementation of these policies without stigma.

The recent expansion of enrollment has led to the addition of a considerable number of faculty members in non-tenure track, full-time positions who play a key role in the undergraduate mission. We have new policies instituting a career path for these faculty members, and we will continue to develop our practices so that we properly recognize their contribution to our mission.

At all times, we must insist on a climate that promotes civil discourse and that has no tolerance of or sympathy for discrimination on the basis of race, gender, disability, sexual orientation or any other irrelevant personal characteristic, and that supports academic freedom together with the highest standards for professional behavior.

In evaluating the quality of scholarly work, we will apply national and international standards rather than purely local comparisons. The production and communication of new knowledge through the publication of peer-reviewed books and articles is at the heart of nearly all of the disciplines of the College. The scale of the College and the increasing specialization of research means that any given individual cannot hope to have expertise in more than a subset of the disciplines represented in the College. Consequently, we frequently fall back on quantitative measures such as the rate of scholarly production or levels of external funding, or community standards such as reputation of a publication venue (university press or academic journal) when evaluating the work of our colleagues. These metrics cannot be used in isolation, but must be coupled with the informed opinion of experts in the field. For this reason, we should pay particular attention to our policies and procedures surrounding outside letters of recommendation that, in many cases, are the principal source of such informed opinions.

Given our commitment to basic research, we must recognize that the true significance of much of our work may only become apparent after some considerable time. To quote Vannevar Bush, writing in *Science: The Endless Frontier*: "Many of the most important discoveries have come as a result of experiments undertaken with very different purposes in mind. Statistically it is certain that important and highly useful discoveries will result from some fraction of the undertakings in basic science; but the results of any one particular investigation cannot be predicted with accuracy."

His comments apply equally to basic research in the humanities and social sciences. Because of this, we must be cautious, lest we naively apply short-term, purely quantitative measures of productivity to complex, long-term, qualitative questions.

Interdisciplinary Work

The College of Liberal Arts and Sciences is a center of interdisciplinary activity at UConn. Some examples of the more formally organized interdisciplinary projects in the College are:

- The Institute for Africana Studies; the Asian and Asian American Studies Institute; El Instituto: Institute of Latina/o, Caribbean, and Latin American Studies; Women's, Gender, and Sexuality Studies Program; and the Center for Judaic Studies and Contemporary Jewish Life all foster interdisciplinary work in the humanities and social sciences in areas related to identity, citizenship, gender, sexuality, diaspora, globalization, and transnationalism.
- The Humanities Institute actively supports research in the humanities by scholars throughout the University, and brings distinguished academics to campus via its well established fellowship program.
- The Human Rights Institute serves as a paradigm of a successful, organic evolution of interdisciplinary interests among faculty into a program of national distinction.
- Cognitive science brings together faculty from linguistics; computer science and engineering; philosophy; literatures, cultures, and languages; English; speech, language, and hearing sciences;

physiology and neurobiology; and four programs in psychology: cognition/action/perception, clinical psychology, developmental psychology, and behavioral neuroscience. Together, these scholars generate cutting-edge research and provide an undergraduate major, minor, and graduate certificate. A proposal for an Institute of Cognitive and Brain Sciences, housing state-of-the-art brain imaging technology, is now under consideration by the University.

- The Center for Health Intervention and Prevention (CHIP) brings together faculty in the social, behavioral, and biological sciences.
- CLAS is also at the heart of UConn's interdisciplinary endeavors in the Institute of Materials Science (IMS), the Center for Environmental Science and Engineering (CESE), and the high-profile Teale Lecture Series.
- A host of small but distinguished interdisciplinary programs, such as programs in medieval studies and India studies, round out this diverse portfolio.

These and the other programs, centers, and institutes at UConn reflect our faculty's recognition that members must reach across disciplinary boundaries and forge links among themselves to answer the big questions that increasingly confront humanity.

The College's engagement over time with interdisciplinary work has led to the accumulation of considerable hard-earned knowledge of how to support interdisciplinary efforts. Experience has revealed the difficulties faced by faculty in interdisciplinary units over multiple demands on their time and the administrative complexities of leading an interdisciplinary unit that exists outside of the traditional departmental structure of the University. The College has developed a body of formal policies and informal approaches to managing this critical aspect of the university's future growth and has much to offer the rest of the university as interdisciplinary projects grow in importance.

Six Areas of Emphasis for Future Growth

The College has identified six broad interdisciplinary areas of strength that can serve as a platform for future growth. The six areas are closely aligned with the University's areas of emphasis. This is not surprising, since the scale of the College and the centrality of its intellectual pursuits means that its strengths and interests are difficult to separate from those of the University as a whole.

1. Fundamental Properties of Materials

The physical sciences, including mathematics, are the foundation of engineering and applied sciences. As such, they have a central role to play in broad University initiatives such as Next Generation Connecticut and the Tech Park. The physical sciences have two main roles in these programs:

- providing the forward-looking, new-discovery aspects of the relevant research areas and
- providing the educational cornerstone in the training of Connecticut's next generation of scientists and engineers.

For the first element, the departments of physics, chemistry, mathematics, statistics, and parts of marine sciences and geosciences have expertise that can be built upon to produce programs with that impact STEM at UConn and internationally. The educational aspects require faculty who can provide appropriate laboratory, research, and capstone design experiences; can develop and provide the latest

scientific pedagogical approaches; and can handle the load of teaching an expected 3,290 new STEM students—each and every one of whom will be required to take courses in chemistry, physics, and mathematics. Fortunately, these two sets of requirements mesh well, and an appropriate investment in the physical sciences will make UConn a leader in the core science and math fields upon which STEM relies.

One core area of emphasis is materials science. Biological, polymeric, and inorganic materials are the basis of every manufactured product, but they also form one of the more important fields for discovery of the fundamental principles of nature. The study of materials is a natural meeting point between pure and applied science. Perhaps the most celebrated area of materials research in recent years has been the rise of nanoscience and nanotechnology, which among other impacts has made it necessary for many engineers to directly consider the effects of quantum mechanics for the first time. Our industrial base continues to rely upon advances in materials, and the importance of this broad field for Connecticut's future has been recognized in the justification for the UConn Tech Park, which calls for investment in advanced materials/manufacturing, cutting edge analytical instrumentation, and computer-aided design and computational research. Similar areas will undoubtedly feature prominently in the Next Generation Connecticut initiative. Thus the study of advanced materials is a key area in which CLAS can contribute to one of the largest and most exciting University initiatives.

There are significant national initiatives in related fields that will provide resources for materials research. The White House's Materials Genome Initiative aims to improve the pace of discovery of new materials and reduce the time between discovery and commercial application by taking full advantage of improved materials computation abilities. On Long Island, our neighbor Brookhaven National Laboratory is constructing the National Synchrotron Light Source II, a billion-dollar research facility for the study of materials, set for full operations to begin in 2015.

As part of the current hiring initiative, the College has hired two chemists to form the basis of a center for green emulsions, micelles, and surfactants (GEMS), and has two ongoing searches in this field. These types of materials have wide-ranging applications, notably in environmental remediation, where there are many opportunities for industrial partnerships. The College has also hired a well-known laser physicist, Nora Berrah, to serve as the head of the Department of Physics. She adds to an already strong group in atomic, molecular, and optical physics. We have also added four new faculty members in mathematics, spread across the applied field of actuarial and financial mathematics and pure mathematics.

2. Language, Cognition, and other Emergent Processes

Complex systems that are organized at multiple levels—from molecules to countries—can only be measured and fully understood using sophisticated, novel analytic approaches such as agent-based modeling, social and geospatial network analyses, multilevel genomic modeling, nonlinear dynamics, and causal feedback loops. A broad collection of interdisciplinary tools is now available to develop and utilize methods to identify and describe the emergent properties of these complex systems. UConn is already internationally recognized for quantitative analytic advances (e.g., mediator/moderator work, the Data Analysis Training Institute of Connecticut workshops, and the Center for Cell Analysis and Modeling). A definitive effort to support the development of a pattern recognition and complex systems initiative presents a powerful opportunity for the College to establish a center of excellence, building on strengths in Bayesian analysis (statistics), logic (philosophy, mathematics, linguistics), genomics and computational biology (MCB, EEB, statistics, and computer science and engineering), and systems

science (psychology). "Big data" and data mining comprise an increasingly important research direction around the globe, and given the strength of emerging grassroots efforts at UConn, we regard this as an excellent opportunity for the University.

Aspects of human language and cognition are fundamental example of emergent processes, and the scientific understanding of language is in its infancy. Understanding the basic science of human language on multiple levels, from neurobiology through behavior, has the potential to address many societal challenges: technological, educational, and clinical. Achieving this understanding will require new methods, theoretical frameworks, and the tools and knowledge already familiar in cognitive-level approaches to language and molecular neuroscience; moving this field forward, as with so many others, will require real and challenging interdisciplinary work.

The cognitive science group at UConn has the personnel, expertise, and theoretical vision to tackle these exciting challenges. The interdisciplinary team includes faculty from seven Ph.D. programs (linguistics; speech, language, and hearing sciences; physiology and neurobiology; and four programs in psychology: behavioral neuroscience, clinical psychology, developmental psychology and perception-action-cognition) and from the Haskins Laboratories, which is developing a synthetic cognitive-biological approach to language. That this group has attracted, to date, over \$6 million in federal funding (including an IGERT graduate training program from NSF and ARRA funding from NIH) is evidence of the productive and pioneering nature of the collaboration.

The uniquely interdisciplinary team in cognitive neuroscience at UConn has been drawing national attention and success. In addition, the translational aspects of this research are significant. Improvements in reading and speech intervention are perhaps the most important components of community outreach from this group. Interaction between cognitive neuroscience; the Department of Human Development and Family Studies; the Neag School of Education; the Center for Health, Intervention and Prevention; and other groups with strong ties to local communities enhances the abilities of all our research scientists to learn from, and communicate with, those communities. Also notable is the role of the humanities in the development of this program, with philosophy serving as an active participant.

The College and the University have supported this interdisciplinary team, recruiting a total of nine faculty in the most recent round: four hires in cognitive science, two in linguistics, and three in more general complex systems science. In addition, several hires in mathematics and statistics also contribute to this effort in a foundational way. Capitalizing on the University's commitment, this scientific effort is moving into a next phase: establishing a functional neuroimaging (fMRI) facility.

Future growth in this area should focus both on core statistical methodology and mathematical modeling and on more translational and clinical capacity, as well as in the core areas of speech and hearing sciences, cognitive psychology, and linguistics.

3. Globalization: Culture, Contacts, and Exchanges

The College has foundational and topical strength in the histories, languages, cultures, literatures, and philosophies of geographical areas of global significance: Asia, the Middle East and Arab world, Africa, the Mediterranean world, and Latin America and the Caribbean. Currently, the College has wide-ranging strength in Europe and Latin America, has built new strength in Asia through the recent cluster hires, and has moderate investments in Africa, the Middle East and Arab world, and Mediterranean studies.

Key elements of these areas of strength are the Africana Studies Institute; the Asian and Asian American Studies Institute; El Instituto: Institute of Latina/o, Caribbean, and Latin American Studies; the Human Rights Institute; The Center for Judaic Studies and Contemporary Jewish Life; and the medieval studies program. Implementation of the College's multi-year cluster hiring plan has resulted in seven hires in Asian studies (in history; literatures, cultures, and languages; and political sciences; plus an eighth in the School of Fine Arts), as well as hires in Africana studies (in English, philosophy, and political science) and in Latina/o, Caribbean, and Latin American studies (in economics, history, and sociology). Most of these new hires hold joint appointments with one of the institutes mentioned above. These new hires complement existing strengths in intercultural and global studies in the departments of anthropology; English; history; literatures, cultures, and languages; sociology, and political science.

The College should expand its expertise regarding manifold interactions among Asia, Africa, and the Islamic world and their interconnectedness with Europe and North America. Recognizing that symbolic, cultural, and material exchange across times and spaces are key to understanding the complex cross-cultural dynamics of past and present global worlds, the College should build on transnational studies, including studies of borderlands, diaspora, slavery, and colonialism; of human rights and civil rights; of cultural contacts and exchange among intellectual traditions across geographical areas; and of the rise and dissemination of a globalized culture in traditional, digital, and experimental media.

Further, recent social transformations—including globalization, transnational economic restructuring, technological innovation, environmental change, and the resulting social and political conflicts—have raised pressing new questions about social inequalities, as well as the operation of societies and economies in the developing world and understanding the impact of governmental, non-profit, and private intervention in these societies. Research strengths exist among faculty in several departments, including anthropology, communication, economics, HDFS, psychology, public policy, statistics, and sociology.

Specific opportunities in this area include:

- Future hires in humanities and social science departments whose research and teaching fosters awareness of global issues, past or present.
- New hires supporting the cultural institutes, which are transitioning into intercultural institutes. El Instituto merged Latina/o studies with Caribbean and Latin American studies. AASI, through new hires specifically in Asia, has been renamed the Asian and Asian American Studies Institute. The Africana Studies Institute has replaced the Institute for African American Studies. New hires in institutes would be joint with departments whose strengths lie especially in the study of intercultural relations (e.g., history and literatures, cultures and languages).
- Continue developing Judaic studies and consider new hires in Islamic studies (both of which could overlap with geographical hires) under the rubric of diasporic studies.
- Expand existing strengths in classical/medieval Mediterranean studies through new hires, possibly in more modern time periods. These hires could also be in Arabic, Judaic, Middle Eastern, or Islamic studies.
- Continue support for the study of globalization (e.g., the global citizenship initiative) and cultural, economic, and political relations, particularly those concerning climate change, economic development and labor relations, health and health care, and immigration.

4. The Environment and Sustainability

Changes in climate, ecosystems, and land and water use will impact all aspects of human life in the next century. The causes and effects of environmental change are scientific as well as societal, driven by the physics, chemistry, and biology of earth systems, and the politics, economics, and expectations of global cultures. The College provides the interdisciplinary strength across the humanities and the social and natural sciences necessary to address global environmental stress comprehensively.

At the core of this strength are two departments widely recognized as having achieved national prominence: the departments of ecology and evolutionary biology and marine sciences, as well as growing programs in geography and geosciences and a wide-ranging and strong group of social scientists and humanists with interests in environmental policy.

Three specific, interrelated areas of existing strength and potential growth are:

- **Climate change.** CLAS is developing considerable interdisciplinary strength in climate science, including atmospheric science, paleoclimatology, marine science, ecology, geoscience, geography, and economics. The College approaches climate change both through the natural sciences (climate modeling, geoinformatics, water resources, the carbon cycle) and the social sciences. Recent hires have included a significant investment in the political economy of climate change and the environment, in environmental economics, and in human rights in light of environmental change.
- **Coastal watershed processes.** Nearly the entire state of Connecticut is incorporated into expansive watersheds that drain into Long Island Sound, one of the largest urban estuaries in the world. The programs in maritime studies and marine sciences at Avery Point, as well as faculty in EEB, geosciences, geography, and economics, bring research strength to this area. The College has strengthened its investment in this area recently with three hires in marine sciences under their Climate and Human Alteration of Coastal Ecosystems (CHACE) initiative. We have also added faculty in environmental economics and maritime policy.
- **Biodiversity science.** Biodiversity is the foundation of the ecosystems on which humans depend for food, energy, raw materials, and safety, but biodiversity loss and environmental disruption threaten these complex systems. Understanding how systems react to disturbance requires an understanding of all parts and their interactions. CLAS has an international reputation in biodiversity science through highly funded departments such as ecology and evolutionary biology and marine sciences. Among the distinctive aspects of our strength in this area is the research collection of plant and animal samples maintained by EEB, which provides biological reference samples to the worldwide research community.

The College offers disciplinary majors and Ph.D. programs in a range of fields with environmental significance, including geography, economics, political science, ecology and evolutionary biology, marine science, and geosciences. We also offer an emphasis on environmental journalism for undergraduate journalism majors. Recent hiring has brought new strength to the programs in environmental economics and the political economy of the environment in the social sciences. We have also hired faculty in the humanities to support the environmental studies major, and there are faculty in history, English, American studies, and philosophy with research and teaching interests that bear on the environment.

Many of our environmental programs overlap significantly with initiatives in the College of Agriculture, Health and Natural Resources, and to a lesser extent with the School of Engineering. With CAHNR, we

offer two interdisciplinary majors in environmental science and environmental studies that provide undergraduates with a background in the natural science and policy aspects of the environment respectively. The Center for Environmental Science and Engineering has also been a valuable resource for CLAS faculty, promoting interdisciplinary work that bridges the sciences, humanities, and social sciences.

There are a number of steps that will help to capitalize on our investments. In terms of faculty hiring, an immediate concern would be a focus on hiring in EEB to build a cohort of junior faculty in anticipation of some impending retirements. Over time we would seek a continued investment in EEB and marine sciences. The Center for Integrative Geosciences adds an earth science perspective to our environmental programs and includes faculty from geography, marine sciences, EEB, physics, and chemistry. It should be maintained and appropriately supported.

One important goal is to better coordinate the full range of environmental research, not only in CLAS but also in CAHNR and School of Engineering. To that end, we support the formation of an Institute for the Environment along the lines proposed in the report of the Provost's Commission of the Environment. This Institute would support and coordinate research, teaching, and outreach on environmental issues from across the university.

5. Social Justice, Diversity, and Equality

The College of Liberal Arts and Sciences has maintained a strong commitment in its research and teaching to an emphasis on social justice, diversity and equality, and public policy and processes aimed at developing interventions, and has identified this as one of its hiring priority areas. Several departments maintain strong clusters or offer a wide range of courses at both the undergraduate and graduate level around issues of diversity and equality (including the departments of anthropology; economics; English; human development and family studies; history; literatures, cultures, and languages; political science; public policy; and sociology). There are currently 41 joint appointments with the Africana Studies Institute; El Instituto; Asian and Asian American Studies Institute; Judaic Studies; Women's, Gender and Sexualities Studies Program; and the Human Rights Institute.

The Human Rights Institute remains a signature program at the University and has recently added a human rights major to its curriculum, joining its well-established minor and graduate certificate programs. HRI has quickly developed a national reputation; at least two universities (San Jose State University and Virginia Tech) are currently developing their own Human Rights Institutes emulating UConn's successful model. While that program is not specifically housed in CLAS, the faculty that are joint appointments or affiliated with HRI are primarily housed in the College's departments of anthropology; English; economics; history; literatures, cultures, and languages; philosophy; political science; and sociology.

The College has already committed to building on this strength in its faculty hires in 2012-2013:

- Six new hires in political science; literatures, cultures, and languages; and history have joined three existing faculty whose work focuses on Asia.
- Four new hires in English, political science, and sociology have been added to 11 existing faculty in African American and Africana studies.
- Thirteen new hires in HDFS, English, history, philosophy, political science, and sociology have been added to 28 existing faculty whose work addresses social justice and equality.

- Four new hires in economics and HDFS have joined 10 existing faculty whose work focuses on inequality in health and health care.
- Five new hires in economics, political science, and public policy now add to 16 existing faculty in the area of public policy.

Note that there are overlaps here: Many faculty work in more than one of the core strengths of the College and each of these core areas include faculty from a wide range of departments, contributing to the College's commitment to interdisciplinary endeavors.

CLAS maintains that this is a critical priority area as it contributes to the University's overall mission and its future growth in STEM. MCAT exams now require a humanities and social science component, and courses in this core area are identified as important in preparing students. Moreover, the College recognizes diversity and inequality as key features of society, and values its mission to contribute to research and teaching in these areas as vital to the education of UConn's students. The College also recognizes its unique position to develop empirically based research in public policy to address issues and challenges in diversity, inequality, and social justice. An aging population as well as an increasingly diverse population, for example, will require greater understanding of the social, economic, and political implications of these shifts and the development of relevant policies. The volatility of the economy and growing concerns about public health and health care both prompt an increasing awareness of inequality and social justice issues, and these will require clear empirical analyses to identify the parameters and depths of the problems and adequate public policies to address them.

Given the existing strengths in the College in the areas of diversity, inequality, and social justice, and its robust program to enhance and further develop these, the College should:

- Support future hires in the humanities and social sciences whose scholarship and teaching interests contribute to knowledge in diversity, inequality, social justice, and public policy to address these challenges.
- Continue to support and build on existing strengths in interdisciplinary and joint hires between the humanities and social science departments in CLAS and the multicultural institutes, women's, gender, and sexuality studies program, and the Human Rights Institute to maximize hiring impacts and encourage interdisciplinary work.

6. Origins and Processes of Life

The life sciences represent perhaps the single largest unifying theme at the University. Virtually every school has faculty researching and teaching aspects of the life sciences, including the diverse areas of ecology, evolution, the environment, neurobiology, behavior, language and cognition, genetics, genomics, medicine, agriculture, and beyond. Furthermore, the state of Connecticut and the University as a whole are poised to become a global center for research and innovation through major initiatives such as the Connecticut Bioscience Innovation Act, Bioscience Connecticut, and the growing relationship with the Jackson Laboratory for Genomic Medicine.

CLAS has existing areas of strength, both departmental and interdepartmental, that provide links to these initiatives. Genomics and genome-sequence-data are growing due to rapid technology development, ever-increasing applications in far-flung disciplines, and the industrialization of biotechnology and personalized medicine. Molecular and cell biology is the de facto home of genomics research and education on the Storrs campus, yet the influence of genomics-related research and faculty expertise extends beyond this department. The College has already begun to support the

interdisciplinary nature of this field through faculty hires in bioinformatics and statistics, as well as in the wet-bench sciences of molecular biology, evolutionary biology, and neurobiology. Additional synergies are developing in a wide range of fields - healthcare, ethics, law, cognitive science, social science, anthropology, archaeology, environmental science, biomedical engineering, forensics, psychology, linguistics, and beyond. In addition to genomics, additional areas of strength within the College align well with other national initiatives, including the National Institutes of Health's BRAIN initiative and studies of climate change.

Building upon strengths, further development of interdisciplinary programs in the life sciences will enhance the University's research profile and bolster STEM education. Some programs that have been identified as areas of growth reflect the wide range of disciplines in the life sciences:

- Personalized medical diagnostics by biomarker detection
- Biomolecular networks
- Regenerative biology
- Evolution of symbiotic networks
- Genetics, genomics and human health
- Neural circuitry
- PSYC and pharmacogenomics and neurobehavioral genetics
- Systems science
- Biodiversity and global change
- Climate change linking Earth's past and future

Beyond their research significance, the life sciences are a foundation of STEM research and education. Biology is one of the largest majors on campus, and biology courses are required by many majors in CLAS, CAHNR, School of Engineering, School of Nursing, and School of Pharmacy, as well as by pre-med, pre-dental, and other health-related programs of study. Biology general education courses are also very heavily enrolled. Together, these demands outpace current teaching capacity, and the addition of approximately 3,000 new STEM students will overwhelm UConn's current life sciences teaching resources. Therefore:

- A priority of the College will be to address the challenges of STEM education to increase literacy and student retention in STEM disciplines.
- As stated on the UConn Next Generation Connecticut Web page, "STEM education involves learning through laboratory experience, capstone design, research, and industry projects." The College should develop an expectation that participation in research is not just for star students, but is an integral part of an undergraduate education. This will require support and recognition of faculty sponsorship of such undergraduate experiences.
- In order to meet the above expectations, the College must provide support for solutions that are scalable as the student population increases.

	Globalization: Cultures, Contacts, and Exchanges	Social Justice, Diversity, and Inequality	Language, Cognition, and Other Emergent Processes	Environment and Sustainability	Origin and Processes of Life	Fundamental Properties of Materials
Globalization: Cultures, Contacts, and Exchanges	Languages; area studies; diaspora studies; literature of the world; cultural anthropology; archaeology	Human rights; social injustice; race and gender	Applied linguistics	Development; resource economics; international approaches to climate change	Biodiversity and conservation	
Social Justice, Diversity, and Inequality		Health economics; race and gender; poverty	Quantitative and empirical policy research	Societal impacts of climate change	Health disparities; health interventions	
Language, Cognition, and Other Emergent Processes			Models of language and cognition; machine learning; statistical modeling; mathematics; philosophy of mind; logic	Climate modeling; models of evolution; population genetics	Bioinformatics; neurobiology	Materials genomics
Environment and Sustainability				Ecology; earth sciences; geographical information systems	The microbiome; ecology; oceanography	Materials for environmental remediation; carbon cycle; transport of pollutants
Origin and Processes of Life					Cellular structures and processes; biochemistry	Biomaterials
Fundamental Properties of Materials						Condensed matter physics; nuclear, atomic, and particle physics; synthetic and physical chemistry

An Infrastructure that Supports Success

As the discussion above indicates, the College has made significant investments in six areas of excellence and has many opportunities to build on these investments and thereby enhance the scholarly reputation and quality of our University. The University academic plan recommends the establishment of "innovative institutes that pursue interdisciplinary research and scholarship in the strategic areas identified above," along with a review of existing centers and institutes with a view towards "funding and research productivity."

In our view, the key to a successful interdisciplinary project is a self-organized, motivated group of faculty who share common goals and can work together in a collegial way. Institutes organized top-down, without appropriate faculty leadership, often have trouble moving beyond an organizational chart into a real community. Therefore we support building on existing networks of faculty, where possible, to further our goals.

In our view, the College already supports several institutes that are logical starting points for the future development of interdisciplinary work. Understanding that they may need some restructuring or study, we point out:

- The University of Connecticut's Humanities Institute, with its existing and successful fellowship program and its support of the Living and Learning Community "Humanities House," is an obvious and natural center for building out research support aligned with the College's "Culture, Contacts, and Exchange" goal. Moreover, the Institute's pending university-wide project on public reason and civil discourse makes the Humanities Institute the ideal mechanism for implementing the University priority called "Artists, Scholars, and Public Discourse." This latter project, with expected University support, provides an exciting opportunity to build on the College's existing strengths in philosophy, political science, History, public policy, and psychology, as well as connecting ongoing research at the professional schools with scholars in humanities based fields at the main campus.
- The Human Rights Institute, together with the College's multicultural institutes, form a natural coalition of faculty with interests spanning the "Culture, Contacts, and Exchange" and "Social Justice, Diversity, and Equality" goals. At the University level, these are closely aligned with the "Human Diversity, Disparity, and Rights" project. Rather than creating something entirely new in this area, we should invest in this constellation of units and build on existing strengths.
- The Institute for Materials Science is the natural locus for investment and research support for "Advanced Materials and Manufacturing."
- The Center for Health, Intervention, and Prevention is a natural home base for the "Health and Wellness" project.
- The nascent, but promising, Institute for Systems Genomics can serve as a platform for the "Origins and Processes of Life" College priority and the University's "Genetics, Genomics, and Personalized Medicine" goal. The ISG still needs to create the kind of productive community that is visible in the examples above.
- The "Brain, Mind, and Cognition" priority at the University level, which is part of the "Emergent Processes" College priority, can call upon the established and productive community of psychologists, philosophers, neuroscientists, linguists, and speech scientists organized around the IGERT grant on language plasticity. The College explicitly supports their vision of an institute

devoted to the brain, the mind, and, in particular, the neurobiology and cognitive neuroscience of language.

As we move forward with these priorities, we must pay serious attention to the facilities we make available to our researchers. Of particular importance are:

- **Physical facilities.** The College needs not just laboratory space, but appropriate collaborative space as well as flexible space that can accommodate visitors and the changing members of interdisciplinary programs. For example, we can envision a building such as Monteith being recast as a center for interdisciplinary work at UConn. It could include shared administrative staff for interdisciplinary programs, conference space, and offices for visitors that can be allocated as needed among multiple institutes. Such space could bring together, for example, the administrative homes of the Human Rights Institute, the Humanities Institute, and the multicultural institutes and thereby foster a much stronger collaborative environment. Several critical programs are currently located in buildings, such as the Torrey Life Sciences building and Gant complex, that are beyond their useful life. These buildings desperately need particular attention from the College and the University.
- **The library.** A first-class research library is critical to a strong university. The library must continue to invest in print materials and maintain an appropriate balance between electronic and traditional media. As we broaden our interests beyond the English-speaking world, we must pay attention to the resources we can make available in languages such as Hebrew, Arabic, Mandarin, and Hindi—both classical and modern forms of the languages. We should build a collection, and also make sure our inter-library loan facilities and our cross-library collaborations are adequate to provide these resources to our faculty.
- **Routine administration.** Staffing levels in CLAS are currently low by University standards and inadequate in critical areas related to grant administration, teaching support, alumni affairs, development, and advising. Investments in faculty must be accompanied by appropriate expansion of the staff.

Excellence in Undergraduate Education

The College is the center for undergraduate education at UConn, and the overall success of the University as a center for undergraduate education flows from the College's success.

According to a recent survey by the Association of American Colleges and Universities, 93% of business leaders surveyed agreed that a “*demonstrated capacity to think critically, communicate clearly and solve complex problems*” is more important than a job candidate’s major. These foundational skills are the core of CLAS, which provides 72% of the undergraduate credit hours; 94% of general education training in art and humanities, social sciences, science and technology, and diversity and multiculturalism; and the majority of the general education Q and W competency courses. The diverse CLAS offerings in humanities and the social and natural sciences enable students to build the solid intellectual foundation and critical thinking skills necessary in today’s global and technologically accelerating world.

The ability to communicate across disciplines is essential to every student’s future, and CLAS bears the responsibility for preparing our students to analyze, empathize, interpret, and communicate with the world around them. Also central to the CLAS mission, if less easily quantifiable than other goals, is the importance of teaching students real life lessons, such as respect for and sensitivity to cultural

differences across time and space; appreciation for ambiguity; to talk about big ideas like meaning and beauty, terror and violence; and to understand the limits of power and the needs of the powerless.

Across disciplines, we discover multiple ways to look at the world, and multiple languages for describing it. As the great physicist I. I. Rabi once remarked, the “good question” means more than the answer, and we are committed to asking good questions as we teach others to ask them.

Future growth of the undergraduate student body requires prudent investment in CLAS to maintain and strengthen general education courses across the curriculum. This means investing in STEM courses such as physics, math, chemistry, biology, and geoscience, many of which are already at (or beyond) capacity. It also means addressing the needs of other high-demand areas, notably in communication and other social science disciplines. Maintaining and inspiring faculty excellence in teaching requires an environment that encourages conversation, creativity, and outreach; it requires increased investments in educational resources and support; and it requires a reduction of bureaucratic burdens on faculty so that time can be devoted to excellent instruction. As a newly released report from the American Academy of Arts and Sciences puts it, the goal of a university education is to create “citizens who are educated in the broadest possible sense, so that they can participate in their own governance and engage with the world.”

Looking to the future, we must also pay close attention to the courses we offer our thousands of majors so that the need to provide general education service courses does not come at the expense of sophisticated and diverse course offerings at the upper division.

We recognize that the pressures on faculty associated with an active research program and the need to accommodate a large student body mean that we will continue to rely on teaching faculty (“in-residence faculty”), and we assert the following principles regarding undergraduate education:

- The promise of the research university is that undergraduates will have the opportunity to interact directly with faculty active at the cutting edge of new developments in their fields. To fulfill this promise, our tenure-track and tenured faculty will continue to participate actively in teaching. Every undergraduate student will have the opportunity to take the overwhelming majority of their upper-division courses from research-active faculty, and will have the opportunity to engage in research projects and independent study with research faculty.
- “In-residence” faculty who contribute in critical ways to the teaching mission of the College will have opportunities for professional development and advancement, will be invited to participate fully in departmental discussions of curricular development and methodology, and will be recognized within their departments and the College for their contributions.

Overall, we must plan to offer each of our undergraduate students the full spectrum of opportunities that we, as a flagship university, are capable of, including:

- Rich general education courses
- Sophisticated and current upper division courses that allow access to top-quality research equipment and a first-class library
- Curricular flexibility to allow them to explore their interests
- Applicable and in-depth advice on how to structure their education to meet their personal goals

- Ample opportunities for close contact with research-active faculty in seminars and research experiences
- The opportunity to gain practical skills through internships in their areas of interest
- Useful tools to place their liberal education in the context of the world of work, so that they can effectively market their education and find a job
- The opportunity to learn how to present themselves professionally and to take advantage of the College's extensive alumni network

Excellence in Graduate Education

As with undergraduate education, the College is the center of graduate training at UConn. Among such riches it is difficult to identify a small number of programs by name. Still, our Department of Linguistics is among the very best in the country, and our Department of Ecology and Evolutionary Biology consistently attracts students holding NSF graduate fellowships.

The quality of our graduate programs will be the true test of our success in changing UConn's scholarly stature. Our ability to attract stellar graduate students, to help them complete their degrees, and to place them in positions where they can make full use of their graduate training, is perhaps the clearest metric of our stature as a research university. In the broader scholarly community, nothing indicates the visibility and scholarly reputation of our faculty more definitively than their ability to attract students. However, unless the conditions of graduate study at UConn are at least reasonably competitive with other top universities, no amount of scholarly attainment by our faculty will be sufficient to draw students away from programs that provide significantly better conditions of study.

The reality is that graduate education is the area where there is the greatest gap between the University's aspirations and its performance. The College has a substantial number of programs that can legitimately claim to offer a faculty strong enough to attract excellent students. However, while the University has successfully used a very deliberate program of merit scholarships and incentives to draw a stronger undergraduate student body and thereby move the University to the point where it is a first-choice school for many undergraduates, we have not yet made a similar effort at the graduate level.

The core issues with graduate education are stipends that are too low, at least in certain fields, coupled with an excessive teaching load and a lack of fellowship support. Where a typical top-tier university graduate program might, for example, offer its incoming graduate students at least a year without teaching, or with minimal duties, we expect very significant teaching contributions from our students from day one. This is purely and simply a financial matter; the graduate program is a critical component of our ability to meet enrollment demand and, in an environment of increasing undergraduate enrollment and with the current cost-structure of the University, we have no alternative to this.

The College will continue to support a variety of approaches to improving the climate for graduate students. We will vigorously support the pursuit of training grants and encouraging other forms of external support, in those fields where such funds are available. We will make graduate fellowship support a fundraising priority, and we will look closely at how we staff undergraduate courses and labs with a view towards freeing resources for graduate support. We will also make targeted investments in individual programs or even individual students in order to capitalize on particular areas of strength.

Additionally, the College will work with departments and the Graduate School to improve the clarity of requirements of the various programs and to streamline programs where possible to speed time-to-degree.

Finally, we will begin developing programs of professional development for graduate students that help to illuminate non-academic opportunities for individuals holding Ph.D. degrees.

We recommend that the University consider broader programs of enhancing graduate support by adopting an approach similar to that used at the undergraduate level: a focused and sustained attempt to provide incentives that will draw top students to the University.

Engagement

The College's commitment to basic research means that, for many of our programs, direct engagement with the community or industry is not a central focus of their mission. Nevertheless, across the College there are particular sites that have an important translational component. Collectively, these sites represent a major contribution.

Among the most important elements of the College's community engagement are through its clinical training programs. The Speech and Hearing Clinic operated by the Department of Speech, Language, and Hearing Sciences provides critical health services in the form of hearing aid fitting and hearing testing for people in Eastern Connecticut. The faculty of this department is also engaged in outreach to provide hearing testing and speech interventions to poor communities in Hartford. The clinical psychology program in the Department of Psychology runs the Psychological Services Clinic, which provides clinical evaluation and ongoing therapy to community members as part of its clinical training program.

The Department of Human Development and Family Studies is in many ways the center of the College's community engagement activities. The department includes the marriage and family therapy training program, which provides services to the public as part of its training programs. The Child Development Labs, a model of childcare and early childhood education, has been a valued component of the UConn community for many years. The department also includes the Center for Applied Research in Human Development, which carries out a wide range of policy evaluations and other projects for the state and other agencies in areas related to family dynamics.

Faculty in ecology and evolutionary biology, marine sciences, and many other departments routinely advise government and NGO bodies at state, national, and international levels on a wide range of applied problems. These include habitat destruction, biodiversity loss, climate change, sea-level rise, deforestation, ecological restoration, coastal resilience, the spread of invasive species, and sustainable agriculture.

The College also supports the Middle School Science Bowl, which is sponsored by the U.S. Department of Energy, and the National Science Olympiad each year. Both programs bring hundreds of middle and high school students to campus for a day of competition.

The College partners with the Neag School of Education in a variety of outreach programs in K-12 schools, including a federally-funded math/science partnership program that involves faculty from Neag and the Department of Mathematics. College faculty members are also key players in the Early College

Experience, in which high school students across the state can participate in college-level courses in their home high schools.

Finally, the College has a number of partnerships with universities in Brazil, Israel, and China, as well as collaborative projects with industry. For example, the College is developing a 3+2 education program with Renmin University of China (RUC) and Shanghai University of Finance and Economics (SUFU). Under this program, selected students from RUC and SUFE will spend the first three years of the undergraduate education in China, and then complete the final undergraduate year and an MS degree during two years at UConn. In addition, the College hosts a number of undergraduates from Brazil every year through the Brazilian government's mobility program.

Looking to the future, the clearest opportunity for an expansion of engagement lies in translational research and work in the public humanities. The NSF and NIH both expect to see social consequences from their investments in research, and we see opportunities for partnerships with the schools and colleges of engineering, business, agriculture, and education so that the basic research of our faculty can be applied to societal problems. We also seek to increase the visibility of our humanities programs as the Humanities Institute and other related institutes expand their programs of public presentations.

Challenges

Some of the challenges confronting CLAS are common to the entire University, and some are unique to the College.

Like the rest of the university, CLAS will be challenged by the demographic of a declining high school population in Connecticut as we attempt to expand our student body as part of Next Generation Connecticut. Like the wider University, we are facing declining federal grant support for research, something most acutely affecting the social sciences and humanities, but also challenging the physical, life, and behavioral sciences as well. And we, like the wider University, must develop a greater articulation between our definition of research vision and emphases for the future (which commonly drives hiring decisions) and our teaching mission.

CLAS also faces some unique challenges. As the only College that serves the entire student body, CLAS struggles with expanding undergraduate enrollments in an environment of stagnant staffing levels and classroom space. It is not enough to simply increase class sizes to accommodate the larger number of students who need specific courses: there is a physical limitation to the number of larger lecture halls and classrooms able to hold more than 35 students. Similarly, there are not enough labs to support the ever-larger number of students who need them. We have begun to schedule labs well into the evening and on weekends; but in order to do so we need to increase staff to set up, monitor, and preserve the safety of the labs.

One short-term strategy of managing the imperative to offer more sections and courses has been an increasing reliance on contingency faculty (VAPs, APiRs, and adjuncts) and graduate students as teachers. While this has been an enormous help in an emergency situation, it is not a viable long-term solution. The constant turnover of contingency faculty requires a great deal of valuable faculty and administrative time and effort to engage in searches which could be better invested in research and their own teaching. While we have been very fortunate that our contingency faculty and graduate student instructors are impressively talented teachers, the structure of their appointments limit their ability to contribute to our research mission.

Our advising system is currently strained to the limit to serve a quickly expanding student body with insufficient staffing. Some departments have professional advisors, some rely exclusively on faculty, and some rely on graduate students and staff to perform this function.

Another challenge particular to the College is the scale of our operation. The complexity of our organization makes financial and personnel management a particularly complicated and demanding task. The routine business of managing the promotion and tenure process, faculty searches, resources for enrollment management, advising, and IT support, for example, can consume so much of the time and attention of the Dean's Office that more important functions such as development and alumni relations are put at risk. We are currently working to strengthen the responsibilities and roles of the associate deans and to invest considerably more central oversight into resource allocation to meet enrollment increases as ways to address these issues.

Our size also means that the Dean's Office is remote from the day-to-day life of teaching in the College. To mitigate this, the College has assembled a Student Leadership Board made up of 23 undergraduate student leaders from across our disciplines who will serve as advocates of the College's liberal arts and

sciences educational mission, both internally to their peers and externally to alumni and donors. The associate deans also remain active in teaching, and the Dean continues to teach periodically.

A senior university administrator once remarked that the College is so large, it is invisible. We see this reflected frequently in decisions by upper echelons of the University that fail to appreciate the scope of the College. A very simple example is the structure of the University's Academic Vision Committee, which contained three representatives from the College out of a total of 16 committee members. Two of these three were social scientists and one was a philosopher. There was no representation from the Life Sciences or Physical Sciences in the College, and no representation from Psychology, a department whose size makes it comparable to several schools at the University. A more reasonable representation of the breadth of the College and its importance to the University would have meant, conservatively, six representatives from the College.

Great universities are founded on their colleges of liberal arts and sciences. We will continue to work to raise the scholarly profile of CLAS at the University, nationally, and internationally.

Conclusion

The recent investment in new faculty has already impacted the fields outlined above. Capitalizing on this investment will require not only the continued addition of faculty, but also a close attention to the supporting infrastructure for research, graduate education, and undergraduate instruction. Judicious investment in core technologies such as imaging, spectroscopy, sequencing, and high performance computing will enable continued growth in our funded research portfolio. Proper levels of staff support, and administrative systems that operate smoothly and respect faculty time, will be essential to achieve maximum productivity from the stellar people we have, and will recruit, at UConn. We will need to invest properly in graduate education to grow our profile in that area. Finally, it will be critical to protect the quality of the undergraduate experience at UConn, since our key ranking in U.S. News and World Report depends so heavily on that factor. Ultimately, UConn's success cannot be separated from the success of its College of Liberal Arts and Sciences.

Metrics

We propose a combination of qualitative and quantitative metrics to assess our progress as a College of Liberal Arts and Sciences.

Research Excellence

Key indicators:

- High level of engagement of the faculty generally in research: to be reflected in the percentage of faculty overall who are publishing and participating in conferences, especially invited talks at major conferences
- Breadth of external support among the faculty: percentage of faculty with grants or other external support and amount of funding in disciplines where this is a relevant measure
- Publication profile of the faculty: papers in flagship disciplinary journals (e.g. *Annals of Mathematics*, *American Economic Review*) as well as leading interdisciplinary venues (e.g. *Nature*); book publications by major university presses
- Marks of distinction among the faculty as indicated by awards, fellowships, prizes and memberships, both early career (e.g. NSF CAREER awards, Sloan Fellowships, ACLS early career fellowships) and later career (e.g. society fellowships, NEH Fellowships, Guggenheims, prizes from scholarly societies, National Academy memberships)
- Quality of research facilities

Data sources:

- Self-reported through Husky DM, assuming that system can be made reliable
- Departmental annual reports

Benchmarks:

- Information derived from promotion and tenure documents
- Periodic reviews of the program by external evaluators
- Academic Analytics: used with great caution because
 - data in AA, even when accurate, is several years out of date, and
 - as currently constructed, the data appears useless in fields that focus on books rather than articles

Effective undergraduate teaching of a strong liberal arts and sciences education

Key Indicators:

- Effective written communication
- Strong quantitative skills
- A global perspective including knowledge of a language in addition to English

- Appreciation for diversity and knowledge of "alternative histories" reflecting the experiences of oppressed communities
- Experience with the practice of the disciplines in humanities, social sciences, and natural sciences (e.g. literary criticism, survey work and ethnography, the scientific method)
- Deep study of a particular area in the liberal arts and sciences
- Access to a diverse faculty and student body
- Opportunity to interact closely with multiple tenure-track faculty in their area of interest, including
 - Participating in some small classes taught by research-active faculty
 - Opportunity to develop skills with state-of-the-art research facilities (including a world class library as well as computing and scientific instrumentation)
- Opportunity to participate in an internship for purposes of career exploration
- Expert advice on course choices, career preparation, and/or preparation for graduate school
- Attainment of a degree without excessive debt
- Quality of classroom spaces

Data sources:

- Periodic review of curricula and assessment of programming and student learning
- Statistics:
 - Percentage of students participating in study abroad
 - Diversity statistics for faculty and student population
 - Class sizes, especially in upper division courses
 - Distribution of average class size by student and major
 - Student contact with research faculty
 - Participation rate in research opportunities
 - Percentage of students who participate in paid or unpaid internships
 - Advisor-student ratio by major
 - Statistics on student engagement with Office of Career Development
 - Placement information post-graduation
 - Average student debt on graduation with quartiles and disaggregation by race
 - Standard University measures of retention, time to graduation, demographics of class, etc.

Effective graduate education

Key Indicators:

- Effective training in the tools of the discipline (or interdisciplinary field) that prepares the graduate for a desired post-graduate career whether in industry or academia
- Access to advisors able to prepare students who will be competitive in the market
- Clear benchmarks of progress to insure the swiftest possible completion of the degree (or exit from the program)
- Competitive support, including manageable teaching obligations
- Some preparation for non-academic use of the Ph.D.
- Expert advice on the job market, on proper preparation, and on the research project itself

- Access to a diverse faculty

Datasources:

- Periodic external review of graduate programs by experts
- Statistics:
 - Probability that a student admitted in year 0 will receive a Ph.D. by year N
 - Placement rate in "good jobs" in academia or industry, or for professional degrees (like Audiology, MFT, clinical psych) in the profession:
 - Postdocs at other top ranked universities
 - Tenure track positions at middle-tier or higher universities or colleges
 - Industry positions
 - Residencies or appropriate professional placements
 - Fair distribution of Ph.D. students among the faculty
 - Percentage of students supported on fellowships or as RA without significant teaching responsibilities