

Part 1: Where We Stand: Looking in the Mirror

Investment of Choice - Intellectual Mission and Scholarly Recognition

Faculty in the Department of Psychological and Brain Sciences (PBS) engage in cutting-edge scientific study of the mind and behavior. This broad field involves understanding both normal and abnormal processes across species, across development, and across different domains of functioning including cognitive, social, biological, emotional, and behavioral. Because these processes are complex and interdependent, it is essential for PBS to develop areas of expertise within multiple domains and to foster collaboration and innovation across sub-disciplines within our field. There are currently five overlapping areas of expertise (Figure 1): behavioral neuroscience, developmental science, social psychology, cognitive psychology, and clinical science. Although these areas correspond with an existing divisional structure in the department, many faculty in PBS identify with more than one of these areas, providing further support for the interdependence of these domains. In addition, faculty engage in research from basic to applied levels, creating significant opportunities to create bridges to translate research findings to solve real-world problems. Thus our range of expertise across the department coupled with the use of varied scientific methods that cut across multiple levels of analysis, from micro to macro (Figure 2), position faculty well for highly fundable translational research.

Productivity

PBS is comprised of both senior faculty that have stature and expertise across all of our divisions coupled with a growing number of assistant and associate faculty who bring new vitality, energy and excitement to our program. These faculty are productive, averaging 2.9 publications per year over the past 3 years. Scholarly productivity does not significantly differ across rank (mean = 2.11, 3.19, and 3.03 for assistant, associate, and full professors, respectively) nor across divisions within PBS (division means range from 2.47 to 3.25). Of our 38 tenure stream faculty who are active in research, 16 currently have active federal grants supporting their research, totaling \$14.5 million, and an additional 14 have submitted grant proposals for external funding in the past 3 years. These figures are consistent with the 2012 Academic Analytics data which found that 51% of PBS faculty had active grants (compared to 36% of Psychology Departments nationally). There are a number of mechanisms in place to ensure that our faculty are productive and generating impactful work at all levels of seniority (e.g., faculty mentoring, post-tenure reviews, adjustments of teaching load in accord with research productivity, etc.). These measures have been effective as evidenced by strong publication records and a high rate of funding in PBS despite shrinking NIH and NSF budgets. Nevertheless, more could be done to pursue interdisciplinary mega-grants involving multiple PIs. For instance, the department would benefit from seed money to conduct pilot work that brings together a team of PIs targeting a specific problem of broad importance.

Areas of Expertise

Behavioral Neuroscience

The behavioral neuroscience division has maintained a critical mass of researchers investigating endocrinology and this continues to be a strength of PBS. This group's expertise in conducting laboratory research on animals (e.g., mice, rats, birds) is also critical not only to interdisciplinary research within PBS, but also across campus between departments and colleges. Animal research necessarily requires external funding and all of the PIs in this area have major grants from NIH and/or NSF. However, this area is significantly challenged by the current split of lab/office space to different sides of campus. The researchers in this area are well positioned for further growth not only through government grants, but also through collaborations with industry. For instance, industry is particularly interested in diabetes and obesity research using endocrinology and animal models.

Cognitive Psychology

Cognition is the study of the fundamental processes (e.g., memory) that underlie nearly all behaviors and cognitive researchers readily engage in collaborative interdisciplinary research. The cognitive faculty of PBS have critical mass in the study of memory and have maintained strength in language and attention. In addition, nearly all of the faculty in this area use computer models in their research. The use of computer models aligns well with interdisciplinary cognitive science research and members of the cognitive area are directing an initiative to establish a cognitive science institute here at UMass. While NIH and NSF funding for purely behavioral cognitive psychology has diminished, cognitive neuroscience funding has been maintained. The cognitive area is positioned to increase its external funding for cognitive neuroscience considering that more than half of the faculty in the cognitive area use cognitive neuroscience measures (electrophysiology, fMRI, or neural modeling). In addition, education funding (e.g., the Institute of Education Sciences) has grown and the current mix of faculty is appropriate to pursue large education-related grants.

Social Psychology

Faculty in PBS with expertise in social psychology are known for their work on close relationships, political psychology, and intergroup relations, with a focus on the cognitive and affective processes underlying these phenomena. The Peace Psychology program within this area is unique in the field and brings visibility to the department. Faculty in social psychology have been highly successful in garnering federal funding from NSF and NIH in recent years. Our ability to further capitalize on funding priorities in the area of social psychology will be enhanced by fostering faculty research that is interdisciplinary and translational, that connects with neuroscience and health, and that works with "big data."

Clinical Science

Faculty with expertise in clinical science seek to understand the development, assessment, and treatment of psychological disorders and associated problems. Faculty in the clinical science program are known for their work on children, adolescents, and families; adult psychopathology and psychotherapy; and adult neuropsychology. Within this area, the Rudd Adoption Center brings visibility to the department. Translational research in this area is facilitated by an exceptionally strong in-house mental health training clinic, which provides a venue for conducting intervention research. Thus, faculty in the clinical area are well-positioned to take advantage of recent funding priorities in patient-centered research. In addition, a number of

clinical faculty collaborate with neuroscience faculty creating opportunities to take advantage of funding priorities at NIMH that emphasize understanding clinical phenomenon across psychological disorders at multiple levels (physiological, neural, behavioral), and for examining the biological mechanisms through which clinical treatments can improve functioning.

Developmental Science

Faculty in PBS engage in developmental research on both humans and animals across different developmental stages. Developmental science is an area that pulls faculty from all areas in PBS because it considers change and development in both humans and other species in ways that shed light on both typical developmental processes as well as abnormal development. The developmental division of PBS represents a strong core to this area of expertise, and has historically had an emphasis on cognitive development in infants. However, this division has begun to expand to include faculty who work with older children and older adults, and to include expertise on social and emotion development. The developmental division has a particular strength in developmental cognitive neuroscience methods, which aligns well with existing funding priorities at the federal level. Developmental research with a strong translational component is also currently a funding priority at the federal level and is well-represented in the department, but with room for growth.

Strengths and Challenges of Intradisciplinary and Interdisciplinary Research

Faculty in PBS are uniquely positioned to forge new lines of innovative research that capitalize on our specific areas of expertise and that ultimately challenge us to consider how all facets of animal and human functioning work together to foster our understanding of the whole human. For example, researchers studying stress both within PBS and across campus are breaking new ground in translating animal models of stress to understanding how human stress is related to psychopathology, various cancers, and cardiovascular disease. A number of faculty across divisions are interested in cognitive and affective development in young children, an area of great promise that has the potential to provide insights into both typical and atypical development. One important highly fundable area of interdisciplinary research that is not currently strongly represented in our department is research on minority health and health disparities. NIH now has an Institute specifically devoted to this topic, and our department has a number of faculty who would connect well with researchers with this specific area of expertise.

Neuroscientific approaches and techniques can be found in all five of the areas within PBS. This reflects a global trend as the discipline of Psychology shifts towards greater consideration of the neurophysiological basis of behavior. In anticipation of these changes, the department recently underwent a name change to reflect this merging of neuroscience and behavior. Research within PBS uses a wide variety of neuroscientific techniques, including, but not limited to, in vivo electrophysiology (both humans and animals), endocrinology (i.e., the role of hormones on behavior), pharmacology, and neural network computer models. In addition, a few of our faculty use functional MRI in their research and we hope to expand our expertise with this technique with the arrival of an MRI scanner on the UMass campus. Although our expertise in neuroscience techniques aligns well with existing funding priorities at the federal level (e.g., NIH BRAIN initiative), there are important obstacles to the continued growth of neuroscience in PBS. Notably, new neuroscience labs have been placed on the other side of campus, in life sciences, because Tobin Hall is at maximum capacity. As a result, interdisciplinary research has suffered, with PIs needing to run back forth across campus to maintain collaborations. Fostering

collaborations both among neuroscientists and between neuroscientists and behavioral researchers is crucial for maintaining strength in the department.

Faculty Recruitment

The department has been highly successful in recruiting our top choices in faculty searches. Prospective faculty are drawn to the department by opportunities to collaborate with other active researchers both within their area of expertise and across the disciplines. Competitive startup packages and reasonable teaching loads, which are both key for launching independent research are also important in attracting new faculty. Working with high-quality graduate students is also important to new faculty. Although the department has been successful in attracting strong graduate students, we could be even more successful with more competitive funding packages. More TA and fellowship support would allow faculty to increase the size of their laboratories. For instance, while UMass averages \$215/student in fellowship support, faculty often find themselves competing with universities that offer more lucrative fellowships (e.g., Penn State spends \$423/student and Maryland spends \$1,389/student). The ability to offer a small number of fellowships to the top PhD candidates is critical to the continued strength of the department. Moreover, our inability to guarantee at least 4 years of support at the time of admissions greatly hampers our ability to attract top notch graduate students. Although we do fund graduate students for at least four years, our competitors make this guarantee at the time of admission and we do not.

Historically, our success in attracting faculty from diverse ethnic backgrounds has not been sufficient. However, recent hires (3, two Asian, one Hispanic) have substantially increased the diversity of our faculty. Nonetheless, we currently have no faculty members who are black/African American, which represents an important gap in our ethnic diversity. We suffered significant faculty losses (n =7) mainly to retirement in 2011. With a substantial recruiting effort over the last three years and with three new positions, one from the Honors College, the other a Provost position for teaching stress, and a spousal hire at the rank of Professor, we have done more than merely replace these losses. We have substantially enhanced the visibility of our internationally recognized cognitive neuroscience program.

Summary

The Department of PBS has a longstanding track record of scientific productivity. The department's success has been built on developing and maintaining both breadth and depth of expertise in the field and both are key for its continued success for at least two reasons. First, maintaining strength across several different domains allows us not only to capitalize on existing funding priorities, but also poises us to be competitive in areas that may not currently enjoy funding priority but that are likely to become highly fundable again in the near future. Second, this breadth and depth fosters collaborations both within and across areas of expertise in PBS. Space challenges have begun to interfere with such collaborations, and it will be important to consider the best way to address these challenges moving forward.

Graduate Program – Look in the Mirror

Destination of Choice

There are many excellent choices of colleges/universities in the country for someone seeking an MA or a PhD in your field. At present, what attracts graduate students to your department? What do you promise to provide them that makes the experience distinctive?

Strengths

- Competitive regarding peer-reviewed journal articles, citations, books, and some grant metrics
 - Articles per faculty (2009-2012) = 9.4 (field median = 9.5)
 - Citations per faculty (2008-2012) = 93.3 (field median = 94.3)
 - Books per faculty (2003-2012) = 1.0 (field median = 0.7)
 - Faculty with grants (2008-2012) = 51% (field median = 36%)
 - Grant per faculty (2008-2012) = .8 (field median = .6)
- Selective admission process promotes quality programs
 - Typically receive many applications, accept few students, and have a high enrollment yield
 - Fall 2012 (a typical year): applications = 480; acceptances = 16 (3.3%); enrollment = 11 (68.8%)
- Rank high within UMass and among peer institutions in diversity/gender balance of student body
 - 2005: ranked 5th in peer group (n=14) in recruiting women (68%) and 2nd in recruiting underrepresented minorities (15%)...these percentages have continued to rise:
 - Fall 2012: number of graduate students = 64; % female = 73% (campus = 52%); U.S. students reporting ALANA = 26% (campus = 25%)
 - Fall 2013: number of graduate students = 63; % female = 75% (campus = 51%); U.S. students reporting ALANA = 29% (campus = 25%)
- Student success in obtaining national fellowships/outside funding (e.g., NSF, NIH, Ford Foundation)
- 2013 student experiences survey revealed high scores on:
 - Quality of academic experience (M=3.71; all departments M=3.76; scale 1-5)
 - Selecting UMass if they had to do it again (M=3.13; all departments M=2.98; scale 1-4)
 - Intention to complete degree at UMass (M=3.82; all departments M=3.70; scale 1-4)
 - Intellectual quality of faculty (M=4.33; all departments M=4.70; scale 1-5)
 - Overall program quality (M=3.74; all departments M=3.76; scale 1-5)
 - Supportiveness of faculty (M=3.40; all departments M=3.33; scale 1-4)
 - Satisfaction with training prior to undertaking own research (M=3.13; all departments M=3.01; scale 1-4)
- Much intra-departmental collaboration: joint research grants, publications, and student training

Weaknesses

- Rank less well on grantsmanship dollars, likely due to number of pre-tenure faculty (~31%)
 - Grant \$ per faculty (2008-2012) = 140,000 (field median = 149,200)
- Fall 2013 an atypical year for applications (down to 311 from 480 in 2012) and enrollment yield (down to 36.8% from 68.8% in 2012)
 - Likely an anomalous year due to several factors: (a) bimodal faculty distribution with some first year faculty not yet taking students and some senior faculty no longer taking students; (b) loss of several internationally recognized faculty (see below), which may have diverted some applicants to other universities; (c) program reorganizations
- Although historically “right-sized,” student body has decreased since 2005 from 80 to 63; aim to restore a “right-sized” student-faculty ratio of 2:1 (~ 80 students), which is the sustainable minimum
 - Decreased enrollment likely to due to uncompetitive stipends and increases in the curriculum fee (the latter resulting in hiring of postdocs instead of graduate students)
- No fMRI scanner on campus
- Inadequate wet lab space and protected animal housing space for neuroscientists (in part responsible for the loss of two internationally recognized neuroendocrinologists)
- General deterioration of building
- Limited resources for recruiting graduate students, funding student travel, and funding direct costs for student research
- Increased demands of teaching in our department place relatively greater impediments to faculty members’ time to conduct/publish scholarly work

Program Outcomes

How well do we prepare students at both the MA and PhD levels to compete for the positions they aspire to? Is the structure of our requirements tailored to what the institutions/employers they hope to impress are looking for?

Strengths

- Our graduates take positions related to their intensive research training
 - Of most recent 131 students who earned their doctorates, over 90% are employed; 107 (89.9%) are in field-related positions, 3 (2.5%) are in partial field-related positions, and 1 (0.84%) is in a field-unrelated position
 - Some have obtained tenure-track positions at prestigious institutions (e.g., Johns Hopkins, U of Wisconsin, U of Minnesota, U of Pittsburgh, Tufts)
 - Also place students in competitive postdocs, as well as non-academic research settings (e.g., Education Development Center, Rand Corporation)
- 2013 student experiences survey revealed a relatively high score on satisfaction with faculty guidance on preparing for an academic career (M=2.92; all departments M=2.90; scale 1-4)
- Cross divisional research groups (e.g., Center for Research on Families; stress research cluster)

Weaknesses

- 2013 student experiences survey revealed one item for which our Department was >1 SD below mean of the University: ‘quality of academic advising and guidance in your program’ (M=3.33; all departments M=3.69; scale 1-5)

- Relative paucity of placements in tenure-track positions in top-tier research institutions

Program Effectiveness

What is the attrition rate in your department? What factors lead to non-completion? At present, is your department making any special efforts to ensure timely completion of the doctorate?

Strengths

- Rank high within UMass and among peer institutions on graduation rates and years to degree
 - Admitted 137 students from 1995-2004: 108 (78.8%) earned their doctorate, 3 (2.2%) left with a masters degree after advancing to candidacy, 15 (10.9%) left with masters degrees before advancing to candidacy, and only 11 (8%) left without a degree
 - Majority of our students complete degree in 6 years or less, which is faster than many of our peers and comparable to UMass as a whole
 - AY 2011-12: number of degrees = 12; median time = 5.6 years (campus = 6 years)
 - AY 2012-13: number of degrees = 7; median time = 6.6 years (campus = 6 years)
 - Note that because of external internship requirement, no clinical student can complete in fewer than 5 years

Weaknesses

- Overwork of graduate TAs in large survey courses (too few TAs assigned to such courses)
- Lack of large, federal grants supporting graduate education and research

Summary

Strengths

- Faculty competitive on most primary scholarship metrics
- Selective admission process, with high enrollment yield
- Diverse and gender-balanced student body
- Students obtain competitive fellowships
- Students would choose UMass again
- Our graduates largely obtain training-relevant positions
- High student satisfaction with faculty guidance on academic careers
- Highly competitive on graduation rates and years to degree

Challenges

- Although historically “right-sized,” student body has decreased
- Low graduate stipends & high curriculum fees hurt recruitment
- Limited resources for recruiting graduate students, funding student travel, and funding direct costs for student research
- Relatively low satisfaction with faculty advising in general
- Relative paucity of placements in tenure-track positions in top-tier research institutions

- Lack of large, federal grants supporting graduate education and research

Undergraduate Program – Look in the Mirror

PROGRAM ATTRACTIVENESS

To what extent and in what ways does your department contribute to the “destination” goal and to the campus’s overall attractiveness vis-à-vis competitor institutions?

- As noted in our recent AQAD review “The department is wildly successful in attracting undergraduate majors”.
 - Number of majors has increased from 1500 in 2005 to 1900 in 2014.
 - Psychology is the largest undergraduate major by a WIDE margin.
- The department is also successful in recruiting the top students
 - Currently 262 Commonwealth Honors College students are psychology majors.
 - 14% of psychology majors are members of CHC (10% is considered a strong department).
- We have a diverse group of majors and the department is at the university average or higher in attracting this diverse student population:
 - The psychology major consists of 80% females (compared to 49% campus wide).
 - The psychology major consists of 27% ALANA students (compared to 23% campus wide).
 - The psychology major consists of 23% out of state majors (18% campus wide).
 - The psychology major consists of 28% of PELL grant recipients (22% campus wide).

OVERALL PROGRAM EFFECTIVENESS

How well is your department meeting the overall needs and expectations of your majors for a high quality educational experience?

- The psychology department does a very good job at retaining our freshman majors.
 - One year retention rates are higher than the campus average (Psychology – 76%; UMASS – 63%)
- Compared to UMASS, which graduates 58.7% of its students in 4 years and 73% of its students in 6 years, 40% of students ***entering the university as a psychology major*** will ***graduate with a degree in psychology*** in 4 years; 63% in 6 years. However, many entering psychology majors end up graduating in other UMASS majors (an additional 12.7% in 4 years; 15.6% in 6 years).
- Of our total graduating majors, 84% graduate in 4 years; 98% in 6 years (this includes students who switched into psychology as a major after matriculating).
- Unfortunately, we are a victim of our own popularity as seen by:
 - Too few faculty (tenure system and/or lecturers) to teach the number of courses needed to educate 1900 majors and many non-majors.
 - Too little graduate student TA support to help manage course enrollment.
 - An advising office that is overwhelmed and strained to its limits.
 - Unavailability of courses to majors in an appropriate time frame resulting in graduation delays.

- Consequently, the psychology department has mixed reviews in the student experience categories (will be discussed in more detail later in this document):
 - Senior/exit surveys:
 - On a 5 point scale: majors rate their departmental overall experience at a 3.36 which meets the university average rating and is higher than the next largest major, biology, but lower than our expectations.
 - Students rate psychology below the university average for “guidance” which I interpret as a combination of advising and one-on-one interactions with faculty.

STUDENT ENGAGEMENT

The campus plan emphasizes active and engaged learning and strong advising and teaching relationships demonstrated to promote student success. How well is your department incorporating these goals across its undergraduate experience.

Our department offers many opportunities for student engagement.

- **Courses**
 - PBS offers an average of 90 undergraduate course offerings per academic year; 36 of these are high level undergraduate seminars, and ten are honors courses.
 - PBS is devoted to training undergraduates via research experiences so they may develop the skills needed to join the workforce.
 - Students can both experience general research training through our research assistantships as well as independent research study.
 - In 2013-14, we provided 460 research assistantships, 247 teaching assistantships, 46 internships, and 26 peer advisor positions to our majors.
 - The department is constantly updating our curriculum to reflect new trends in psychology as a field (e.g. cognitive neuroscience courses).
 - Several of our courses contain a service learning component so that students can engage in outreach to the community (e.g. Clinical Psychology - 391).
- **The neuroscience track**
 - The department has a very active neuroscience track for students interested in neuroscience. This track is demanding as students must complete several science and math courses as this track fulfills pre-med requirements. Additionally, neuroscience track students participate in neuroscience research.
 - The number of students opting for this challenging track has grown over the years, and currently, 171 students have selected this track for their major. The popularity of this track has prompted the department to contribute to a joint effort with Biology to create a new Neuroscience major.
- **The departmental honors program**
 - We have a very active and rigorous honors program.
 - Currently, 260 psychology majors participate in the honors program.
 - An average of 10 psychology honors courses are offered each academic year.
 - Over 50 honors students complete a senior honors thesis or capstone project each year.
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- **Specialized programs**
 - We offer a specialization in Developmental Disabilities where students take specialized courses and complete an internship working with individuals/families with disabilities. Approximately 100 majors participate in this program
 - We offer the “Advancing Diversity in Research and Practice” program for students of diversity and students interested in diversity. Students complete coursework, research and internships involving diversity issues.

- **We are still limited in providing courses/lab experience to our majors.**
 - Because the number of psychology majors has increased from 1200-1900 over the last few years while FTEs remained relatively steady (although we have had an increase in FTEs starting in 2014); and lecturers have increased slightly, many psychology majors can NOT get the research/lab training they want and need.
 - Many majors can NOT take the required major courses in a timely fashion.
 - The department cannot offer as many laboratory courses as we would like (which would provide a larger number of students research experience).

- **Advising**
 - The advising center is comprised of two faculty advisors, one professional advisor and 12-13 peer advisors. The faculty/staff advisors spend ½ of their time in advising.
 - The current and former Chief Undergraduate Advisors have won campus advising awards and the psychology advising office is a model that other departments look towards.
 - The advising office offers daily advising M-F, 9-5pm. Students can walk in for advising any time. If students want to meet with a specific advisor, they can schedule a meeting during the posted office hours.
 - The advising office offers a large and growing number of workshops and seminars for students including:
 - Required freshmen registration meetings; Freshman individual appointments, Study abroad workshops; Internship workshops; Careers workshops; Graduate school workshops; Life after graduation workshops; Opportunities for psychology majors workshops;

- **We are still limited in providing advising services to our majors.**
 - Undergraduates want to be assigned an individual advisor with whom they could meet with each semester if they wanted. This would require each advisor to serve 600 students under our current organizational structure.
 - The growing demand of both the number of majors and the individual needs of majors has overwhelmed the advising office.
 - Senior exit surveys rate our advising services below the university average (but higher than other large majors such as biology, chemistry, and math).

- **Organizations.**
 - **Psi Chi.** The psychology department has a very active honor society (Psi Chi) which holds meetings twice a month. These meetings focus on research activity, community service and career opportunities. They are very well attended.
 - In 2014, Our Psi Chi chapter won the National award for “Officer/Team Leadership”.

- **MAPS.** MAPS is a 5-college organization focused on issues of diversity. This club holds monthly meetings and also engages in community outreach.
- **Neuroscience Club.** This club is an interdisciplinary club for all students interested in neuroscience. Nu Ro Psi, a neuroscience honors society is also an organization in which our students participate.

TEACHING CONTRIBUTIONS AND EFFECTIVENESS & STUDENT OUTCOMES

How well are you organizing and delivering undergraduate instruction? AND

What is the student overall assessment of their learning across your courses; What is their assessment of the extent to which UMASS contributed to important skills and habits of mind?

- The department receives **very high** teaching ratings from students via the SRTI course evaluations:
 - Psychology is one standard deviation **higher** than university means on many measures including: instructor preparedness, clarity, use of class time and most importantly, overall rating of the courses (Mean = 4.42 of 5.0)
 - These ratings have remained excellent and stable over the past 10 years for both large lectures and small seminars despite the fact that the major has grown but faculty size has not (i.e. the same number of faculty continue to provide excellent teaching to more and more students every year).
 - Our department has 5 Distinguished Teaching Award winners and 9 College Teaching Award winners
- On senior surveys, students rate their skill level, knowledge and personal development similarly to the UMASS departmental average.
- Despite our growing numbers in students relative to a stable faculty size, senior survey responses demonstrate rising trends in students' assessment of their writing, speaking, analyzing and problem solving skills learned in their major courses from 2005-2014.

EFFECTIVE USE OF RESOURCES

Promoting quality and effectiveness across all the domains identified about relies on the effective deployment of resources. Given the many competing demands on resources, and especially on faculty time and talent, how effectively do you see your instructional resources?

- **Delivery of the curriculum**
 - The department offers a wide range of courses to both undergraduate majors and non-majors. (Average of 60 per year)
 - We offer gen ed. courses and service courses for other majors including nursing, education and business.
 - We provide 5500 seats for students per year.
 - 60% of our core courses are overenrolled each year – and these courses range in size from small-25 to large – 470.
 - Every semester our faculty members sponsor 90-95 undergraduate research assistantships which translates to an average of 5.5-7.5 students per faculty.
 - Over 50 seniors conduct independent honors theses each year

- **We have worked very hard over the past several years to use limited resources to meet the increasing demands of our students.**
 - We have assigned lecturers to teach our basic courses in Introductory Psychology and Research Methods.
 - We have assigned lecturers to teach some of our large core courses (e.g. Behavioral Neuroscience).
 - We have increased the teaching load of tenure system faculty who are no longer research active.
 - We have altered the teaching of our Junior Writing course from having 6 faculty teach this course per semester to having one faculty member mentor senior graduate students who teach sections of this course.
 - We have redesigned statistics (previously 5 courses of 60 students each) so that it is one large lecture course taught by a single faculty member with redesigned lab sections run by graduate students.
 - We have incorporated online resources in many of our large and small courses (e.g. interactive websites; textbook publisher sites with videos, quizzes and learning tools)
 - We are beginning to consider blended courses to reduce the efforts of faculty in large lecture courses.

- **We still have many challenges delivering our curriculum.**
 - Our most significant challenge is meeting the needs of our undergraduate student demands. Our resource allocations have not kept pace with increasing enrollments in the major and in our courses.
 - Number of undergraduate majors in 2005 = 1200; in 2014 = 1900
 - Number of FTE in 2005 =44; in 2013 = 40
 - Number of lecturers in 2005 = 4.5; in 2014 = 9.5
 - The teaching load for our research-active faculty is 4 courses/year (typically 3 classroom courses and the equivalent of 1 course in independent-study supervision) which is higher than some other departments in our college (CNS).
 - We have lower TA support (e.g. Our 470 seat course holds a 1.5 TA) than we need to adequately staff our courses.
 - Students are unable to take certain major requirements in a timely manner.
 - Junior writing is almost exclusively filled with seniors.
 - Many students cannot take Statistics or Research Methods until their junior and senior years.
 - Our small seminar courses are almost exclusively filled with seniors.

DIVERSITY, INCLUSION, AND ACCESS

How well does your department do in attracting the interest of students in under-represented groups and sustaining it all the way to graduation?

- We are a diverse major. The department is at the university average or higher in attracting a diverse student population as discussed earlier.
- The department offers 23 undergraduate courses that treat topics related to cultural diversity issues.

- The department works hard to retain our diverse students and has developed the following in the last few years:
 - **ADRAP:** The “Advancing Diversity in Research and Practice” program aims to increase diversity in the next generation of researchers and practitioners in psychology by enrolling diverse students in a two semester program that includes seminars and research/internship experience to prepare these students for future careers in psychology.
 - **DDHS:** The department works in conjunction with the Department of Intellectual Disabilities in providing our Developmental Disabilities and Human Services specializations. Over 90 students participate in this program which allows them to take specialized classes on disabilities and inclusion and to participate in an internship working with individuals with disabilities.
 - **MAPS:** Several years ago, the department created the MAPS club which focuses on increasing awareness, knowledge, and skills regarding multicultural-diversity-social justice issues.

INTERNATIONAL EXPERIENCE

Does your department build into its program, an emphasis on opportunities for international exposure, study abroad and interchange with students from other countries on our campus?

- The undergraduate advising center offers a workshop on study abroad every semester for students to learn about international exchange programs.
- Nearly 200 psychology majors have studied abroad in the last two years. . This is double the number of biology majors studying abroad and higher than every other STEM major at UMASS.

CO-CURRICULAR ENGAGEMENT

Does your department encourage students to connect to non-profit organizations, community groups, etc.

- We offer several courses that have a community service component allowing students to work with various community groups.
- Our DDHS and ADRAMP programs are well connected with the local social-service agencies and 40 – 60 students complete an internship with one of these agencies each year.
- Our psychology organization/clubs are actively involved in community service. These groups participate in fundraising and awareness activities for a variety of organizations every year.

Recommendations for Improving Undergraduate Education

Lab Courses Focusing on Specific Areas. All Psychology majors take a course in research methods. However, many students would benefit from a course that goes into more depth about how research is conducted within a particular branch of the field. We recently revived our undergraduate course in neuroscience methods. We are prepared to offer a new course in cognitive methods as well. Lab courses in other areas of Psychology, including developmental, social, and clinical, would benefit undergraduates with interests in these disciplines. Students

who have completed a lab course within a specific area will be better prepared to start a research assistantship in one of our labs, potentially allowing faculty to increase the already large number of undergraduate research assistants they supervise.

Expanding Online Resources in Teaching. Given the number of large classes taught in PBS, many of our instructors augment their in-person teaching with online materials, including simulations, demonstrations of experiments, discussion boards, and quizzes. Further, PBS offers classes that are fully online through CPE. However, there is more that we could do as a department to identify which electronic methods work best for undergraduates in our field, to educate PBS faculty in these methods, and to make shared tools easily available. We have the expertise needed to assess how online and classroom instruction can be combined most effectively. Once we have identified the methods best suited to our courses, we can present them to our faculty through a workshop. In most cases, we will incorporate online material while retaining the advantages that students enjoy when they interact with instructors and other students face to face.

Tutoring for Challenging Courses. For many Psychology majors, the most challenging courses are Statistics, Methods, Behavioral Neuroscience, and Cognitive Psychology. Providing department-wide resources for help in these courses could improve learning (especially for disadvantaged students who lack background in these areas) and reduce the number of students needing to repeat courses. At the end of each semester, we could identify students who did exceptionally well in these classes and hire 4-8 tutors to work 10 hours/week. These tutors would be available in a tutoring center (Tobin 504, near the Psychology advising office), where current students in these classes could drop by for help.

Restructuring the Psychology Major to Include Requirements from Other Departments. Psychology research draws heavily on other areas of science. As is true of other science departments, students who plan to do research in Psychology need background in related scientific fields. We could provide this background by requiring Psychology majors to take courses in other departments. Not all majors need the same courses; those interested in neural mechanisms underlying behavior could take biology or biochemistry, those who study behavior more abstractly could take computer science or math, and those studying language could take linguistics. Thus, it should be possible to institute this change without unduly burdening any one department. Further, there are general skills, including scientific writing and public speaking, that would benefit all of our majors but which might be better taught by professionals in these areas. Requiring outside-department courses would provide Psychology majors with a more solid foundation and would allow PBS to offer more sections of Psychology courses that currently have a backlog.

Graduate TA Training. Some of our required courses including Statistics, Methods, Junior Writing, and the Integrative Experience have sections taught by graduate TAs. The experience of undergraduates in these sections is hugely affected by the skill, experience, and teaching interests of the graduate students they get as instructors. As such, the experience of undergraduates could be greatly and immediately improved by having mandatory teaching training and ongoing teaching mentoring and supervision provided through the CNS or the Center for Teaching.

Career Development and Tracking. There are campus resources available related to career options for graduates with a Psychology degree. However, these resources are underused by our majors and not fully integrated into the curriculum. We invite Career Services to both advertise their current programs in ways that are more visible to our students and to develop programs that specifically address the needs of Psychology majors. We also see potential benefits of actively tracking our majors after they graduate. We could not only collect information about their career paths to more accurately assess our ability to meet their educational goals, but could also recruit some of them to interact with and advise current students. It must be noted, however, that our staff is already stretched in serving current students; tracking graduates would require additional staff support.

Progressing to Graduation. The number of Psychology majors has grown much more quickly than the number of faculty, making it harder for students to find seats in courses. Students who change majors, have to retake a course, or simply register a little late, are often unable to get into the required courses on schedule. The problem is especially frustrating for students who transfer into Psychology in their junior or senior year. Recently we addressed one part of this problem by offering statistics in much larger sections. However most students cannot take Junior Writing, which cannot be offered as large sections, until their senior year. Since Junior Writing is a prerequisite for our Integrative Experience course, the problem cascades and delays graduation for some students. A related problem occurs in advising, where three part-time advisors struggle to serve 1900 students.

If we continue to accept all undergraduates who want to major in Psychology, we need additional *increases in the numbers of faculty, graduate TAs, and advisors*. The teaching load for PBS faculty is already heavier than for other departments within the college and we have been stretching our resources to serve large numbers of students for many years. Another option would be to limit the number of students who are allowed to enter the major, especially those who want to transfer into the major in their junior or senior year. *One of these two approaches is necessary to meet the goal of having Psychology majors complete their degrees in four years.*

Part II. Vision for the Future – Faculty and Graduate Education
In progress, spring 2015