Standard Five: Faculty

I. The Faculty

Description

Faculty form the backbone of a great public research university: They create and transmit new knowledge that prepares students, while providing innovations and understandings to improve quality of life and propel economic development. The best introduction to the UMass Amherst faculty, its strengths and its prospects, is found in Framework for Excellence,^ which summarizes the faculty’s current state and plans for addressing the institution’s faculty needs in the coming decade. The Framework for Excellence has been widely distributed and read within the campus community. It states: “The key to any great research university is the quality of its faculty. We are fortunate at UMass Amherst to have a faculty of extremely high quality. In every year but one since 2000 we have ranked among the top 40 public research institutions in faculty awards.” (Figure 5.1)

Figure 5.1

<table>
<thead>
<tr>
<th>Faculty Awards</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>15</td>
<td>10</td>
<td>13</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Public Univ. Rank</td>
<td>22</td>
<td>41</td>
<td>34</td>
<td>18</td>
<td>37</td>
</tr>
</tbody>
</table>

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The Framework for Excellence further says: “For the past decade we have also ranked among the top 50 public research institutions in National Academy memberships, which is all the more remarkable considering one of the three academies is restricted to members of medical school faculties (Figure 5.2). We have many faculty members with international reputations in their disciplines, as well as some of the top-ranked academic programs in the country. The reputation of our faculty in turn allows us to recruit outstanding faculty from around the world.”

Figure 5.2

<table>
<thead>
<tr>
<th>National Academy Members</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Public Univ. Rank</td>
<td>44</td>
<td>43</td>
<td>37</td>
<td>46</td>
<td>37</td>
</tr>
</tbody>
</table>

While the quality of the UMass Amherst faculty remains high, faculty numbers have continued to fall at a troubling rate during the past decade. The Full-Time Instructional Faculty Fall 1987-Fall 2008 table details a declining trend in faculty numbers at UMass Amherst, from 1,201 tenured and tenure-track faculty in fall 1987 to 975 tenured and tenure-track faculty in fall 2008; that was an erosion of nearly 19 percent. The total faculty number – including both tenure-system and non-tenure system faculty – fell from 1,303 in 1987 to 1,180 in 2008; that was a decline of about 10 percent. Also evident in these numbers is an increasing reliance on instructors who are not in the tenure system: In fall 1987, 92 percent of total full-time instructional faculty were tenured or tenure-track; that fell to 83 percent in fall 2008.

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Faculty Personnel Policies

- **Tenure Track Faculty**

Faculty personnel policies for tenure track faculty are clearly articulated in the Board of Trustees Academic Personnel Policy and in the Union Contract between the University of Massachusetts Board of Trustees and the Massachusetts Society of Professors, the union representing UMass Amherst faculty. Both documents are provided to all faculty members when they are hired, and state law requires that all unions in Massachusetts advise members whenever a new union contract is being negotiated.

The Trustees’ Academic Personnel Policy and the Union Contract both establish clear criteria for appointment and reappointment to faculty positions (Academic Personnel Policy, sections 4.4 and 4.5). The Policy also details regulations regarding both the length of appointment and notice concerning reappointment (Academic Personnel Policy, sections 6.1, 6.2, 6.7). Criteria for promotion and award of tenure are also clearly articulated (Academic Personnel Policy, sections 4.4, 4.6, 4.9, 4.11). Likewise, the Policy describes the process for major personnel reviews (Academic Personnol Policy, section 6.4). The Policy charges the deans and Provost to ensure “that general criteria and procedural standards are consistently employed” (Academic Personnel Policy, section 6.4).

About 83 percent of UMass Amherst faculty hold full-time, tenure-track appointments, and 93 percent of full-time faculty hold doctoral or other appropriate terminal degrees (Table 5.1). Faculty responsibilities concerning instruction are described in the Union Contract, Article 15, and in the Academic Personnel Policy, section 5.2. Faculty roles in personnel procedures and in developing academic policies are described in the Academic Personnel Policy, sections 3.1 and 3.3.

Table 5.1
Degree Attainment of Instructional Faculty, Fall 2008

<table>
<thead>
<tr>
<th>Highest Degree</th>
<th>Full-Time</th>
<th></th>
<th>Part-Time</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Doctorate or Other Terminal Degree</td>
<td>1,072</td>
<td>93%</td>
<td>111</td>
<td>55%</td>
<td>1,183</td>
<td>87%</td>
</tr>
<tr>
<td>Master's</td>
<td>62</td>
<td>5%</td>
<td>68</td>
<td>34%</td>
<td>130</td>
<td>10%</td>
</tr>
<tr>
<td>Bachelor's</td>
<td>15</td>
<td>1%</td>
<td>19</td>
<td>9%</td>
<td>34</td>
<td>3%</td>
</tr>
<tr>
<td>Unknown</td>
<td>5</td>
<td>0%</td>
<td>4</td>
<td>2%</td>
<td>9</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>1,154</td>
<td>100%</td>
<td>202</td>
<td>100%</td>
<td>1,356</td>
<td>100%</td>
</tr>
</tbody>
</table>

Includes instructional faculty in state-supported and Continuing and Professional Education Programs.

- **Contract Faculty**

Non-tenure track faculty are appointed to fulfill particular needs, especially in the area of instruction. Their contracts may be full-time or part-time within any one of the following ranks: lecturer, senior lecturer, senior lecturer II, clinical faculty, visiting faculty and research faculty. The extent of UMass Amherst’s employment of non-tenure track faculty falls within accepted...
practices among research universities nationally. In fall 2008, non-tenure track faculty composed about 17 percent of total full-time instructional faculty at UMass Amherst (*Full-Time Instructional Faculty Fall 1987-Fall 2008*). By comparison, non-tenure track faculty composed, on average, 22 percent of full-time instructional faculty at other public universities with “very high research” designations in fall 2008.

Criteria for the appointment of full-time and part-time contract faculty, as well as their roles and responsibilities, are described in the Trustees’ *Academic Personnel Policy*, section 4.11. Recognizing the increased role of contract faculty at UMass Amherst – They now provide almost 30 percent of instruction – the campus administration and the faculty union negotiated and implemented new policies providing for multiple year contracts and promotion opportunities for lecturers (*Union Contract*, Article 21).

- **Faculty Salaries and Benefits**

Salaries and benefits for UMass Amherst faculty are negotiated with the faculty union, the Massachusetts Society of Professors. Overall, salary limits for all employee groups are determined by the Commonwealth of Massachusetts Office of Employee Relations within the Executive Office for Administration and Finance. Salaries for tenure-track faculty are slightly lower than those at peer institutions in the Northeast (Table 5.2). Yet UMass Amherst remains sufficiently competitive to attract and retain a highly qualified faculty, partly because current benefits are quite generous by national standards, as described in the *Union Contract*, Article 27.

**Table 5.2**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Professor Rank</th>
<th>Associate Professor Rank</th>
<th>Assistant Professor Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Massachusetts Amherst</td>
<td>$117,104</td>
<td>9</td>
<td>$89,738</td>
</tr>
<tr>
<td>Indiana University-Bloomington</td>
<td>$118,409</td>
<td>8</td>
<td>$82,299</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>$109,736</td>
<td>10</td>
<td>$81,589</td>
</tr>
<tr>
<td>Rutgers University-New Brunswick</td>
<td>$135,190</td>
<td>1</td>
<td>$92,496</td>
</tr>
<tr>
<td>Stony Brook University</td>
<td>$126,539</td>
<td>6</td>
<td>$92,233</td>
</tr>
<tr>
<td>University of California-Santa Barbara</td>
<td>$128,452</td>
<td>4</td>
<td>$77,837</td>
</tr>
<tr>
<td>University of Colorado at Boulder</td>
<td>$119,856</td>
<td>7</td>
<td>$88,648</td>
</tr>
<tr>
<td>University of Connecticut</td>
<td>$133,017</td>
<td>3</td>
<td>$91,837</td>
</tr>
<tr>
<td>University of Delaware</td>
<td>$127,730</td>
<td>5</td>
<td>$86,780</td>
</tr>
<tr>
<td>University of Maryland-College Park</td>
<td>$133,416</td>
<td>2</td>
<td>$94,881</td>
</tr>
<tr>
<td>University of Nebraska-Lincoln</td>
<td>$107,396</td>
<td>11</td>
<td>$74,802</td>
</tr>
<tr>
<td>Peer Median</td>
<td>$127,134</td>
<td></td>
<td>$87,714</td>
</tr>
<tr>
<td>Peer Mean</td>
<td>$123,974</td>
<td></td>
<td>$86,385</td>
</tr>
</tbody>
</table>

Source: IPEDS Staff Survey, Fall 2008
● Faculty Workload and Instructional Responsibilities

Like most research universities, UMass Amherst does not specify teaching loads for tenure-track faculty. General workload expectations are specified in the Union Contract^, Article 15. The Office of Academic Planning and Assessment and Office of Institutional Research track all instructional activity by funding unit and instructor type. Comparative data are provided across campus units. In addition, UMass Amherst participates in the National Study of Instructional Productivity, known as the Delaware Study^, which provides benchmarks by discipline for instruction at comparable public research universities. All of these data are used in regular assessment of faculty workload, and in allocating instructional resources. All faculty members participate in a Periodic Multi-Year Review, in which possible adjustments in workload distribution may be negotiated. Overall student-faculty ratios at UMass Amherst are comparable to those at peer universities, and these are reviewed regularly; the campus monitors, on a discipline-by-discipline basis, how it compares with peer institutions. When discrepancies have been identified, the campus has added faculty to bring its student-faculty ratios and instructional workloads more in line with peer institutions.

In addition to instruction, UMass Amherst faculty have various other responsibilities, such as service and curriculum development. These are specified in the faculty Union Contract^, Articles 11-15.

● Faculty Evaluation and Professional Development

Faculty members are evaluated annually by their peers and appropriate academic administrators. The criteria and procedures for the annual evaluation are laid out in the Union Contract^, Articles 33 and 21A.4. Faculty members are also reviewed for consideration for merit salary increases whenever such increases are available, as described in the Union Contract^, Article 26.4. Tenured faculty members participate in a post-tenure review known as Periodic Multi-Year Review, as described in the Union Contract^, Appendix A.

To enhance the quality of instructional and research programs on campus, faculty members are provided with various opportunities for professional development, including sabbatical leaves, access to research and educational support funds, and a variety of support services provided by the Office of Faculty Development. In order to maximize the success of early career faculty and enhance the likelihood that they will achieve tenure, the University recently adopted a pilot program providing a “research intensive semester” for untenured faculty in the Humanities and Fine Arts.

Beginning in fall 2010, the campus will implement a new, more flexible sabbatical leave policy. In addition, the administration and faculty union have agreed to a joint committee to study enhanced sabbatical systems at other universities. It will seek to ascertain whether a more generous sabbatical leave – one that would benefit faculty without significantly increasing the cost to the University – is possible.

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• Faculty Conduct

The Board of Trustees has established various policies concerning faculty conduct, which include a Code of Professional Ethics for the Faculty dealing with allegations of scholarly misconduct, a policy on conflict of interest in research and scholarly activity, and a policy on consulting and outside activities.

• Faculty Grievance Policies

The Board of Trustees has issued policies that provide faculty members the right to discuss with appropriate administrative officials the reasons for any negative decisions (Academic Personnel Policy, sections 5.1f, 5.1i and 6.10). The faculty Union Contract, Article 25, also provides a grievance process that begins with a mandatory attempt at informal resolution and that may culminate in binding arbitration.

• Graduate Teaching Assistants

Graduate teaching assistants provide approximately 11 percent of the instruction offered at UMass Amherst. Under the terms of the contract with the graduate student employee union, all graduate teaching assistants scheduled to teach for the first time at the University are required to attend an orientation session offered by the Center for Teaching or by their department.

Appraisal

As stated in the Framework for Excellence, individual faculty members can no doubt improve their effectiveness as teachers and scholars. Yet the most important challenge UMass Amherst faces regarding faculty is simply the overall number. Compared to public research universities at the rank to which the campus aspires, UMass Amherst has too few faculty members. This relative dearth of faculty resources, especially on a campus with no medical school, means it will be difficult for us to improve our rankings in faculty awards and in other prestigious recognitions from external agencies.

Given the erosion in faculty numbers shown in the Full-Time Instructional Faculty Fall 1987-Fall 2008 table, the Framework for Excellence proposes strategic faculty increases when economic and budgetary conditions allow. The campus embraces the numerical goals of UMass Amherst 250, a planning initiative completed in 2005 that aimed to increase the size of the Amherst faculty to 1,200, a benchmark representing campus strength in the late 1980s; this faculty size would allow UMass Amherst to remain – and make gains – as a nationally competitive public research university achieving its full potential in teaching, research and service. The campus again aims for that benchmark, even as budget exigencies might force position eliminations in the short term. When UMass Amherst has budgetary means, the campus will proceed to increase faculty size with an eye toward strategic initiatives. Instructional needs are important, but cannot be the sole factor in deciding where to allocate new positions. Wherever a faculty position is granted, the campus will want to consider what sort of return we are going to receive in terms of teaching, research and service.

Feedback

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Regarding faculty personnel policies, the UMass Amherst faculty have in place multiple, specific policies to address the full spectrum of personnel issues. These policies are articulated in the University of Massachusetts Board of Trustees Academic Personnel Policy and in the Union Contract between the University of Massachusetts Board of Trustees and the Massachusetts Society of Professors, the campus’s faculty union. Personnel policies are updated as needed. The term of the Union Contract is determined in negotiations, however contracts typically cover three years; the current contract covers fiscal years 2009-2011.

**Projection**

In the next decade, UMass Amherst will proceed to increase the size of the faculty, according to the Framework for Excellence. The timing of these investments relies in large part on revenue recovery, including revenue from increased student enrollment. Net growth in the size of the faculty is therefore targeted toward the middle and later years of the planning period. The new Provost and Senior Vice Chancellor for Academic Affairs will work with deans and the central administration to address this important issue. The following considerations will assist the campus in maximizing investment in new faculty:

- A recently issued Request for Proposals outlined the strategy the campus will employ for hiring a significant portion of its faculty in the next decade. The RFP calls for proposals from groups of faculty interested in a specific area of research and teaching and asked them to make requests for faculty to augment their activities. Among other criteria, these requests will be evaluated according to the possibilities for securing external funding, the promise of establishing UMass Amherst as a center of excellence for the specific activity, and the strengths that currently exist on the campus in that area.

- Because the campus recognizes the corresponding need for a robust program of capital construction over the next decade, UMass Amherst will coordinate plans for hiring faculty with the overall campus long-range building plan. The campus will likely have to delay the addition of faculty until additional operating funds are received, but in that time will make headway completing several new or renovated facilities to house these new faculty members.

- Other campus units likewise will coordinate activities with hiring plans. Development will be able to present opportunities for donors to invest in the future of promising fields of research and teaching; admissions will seek to attract students to the new and exciting programs being implemented; and communications will begin to advertise our national prominence in areas of excellence on campus and to build coalitions with key constituents to improve on the current level of excellence.

- The administration must do more to support faculty achievement and excellence and to build structures to assist faculty success in obtaining research grants, in winning additional faculty awards, and in gaining recognition for innovative and effective teaching and scholarship. The goal in administration must be centered on supporting an increased level of faculty accomplishment in these areas.
II. Teaching and Advising

Description

Teaching and advising are core components of the campus mission, and UMass Amherst is committed to ensuring their effectiveness and continued improvement. Students have opportunities for varied instructional experiences, including lectures, discussions, labs, seminars, and field experiences. Increasingly, these opportunities are supported by technology, either within the classroom or through online homework or instruction. The campus focus on instructional and advising effectiveness is addressed through instructional development opportunities, institutional support for teaching innovations, and evaluation activity that monitors effectiveness.

Instruction

The Center for Teaching (CFT) provides support for teaching and offers opportunities for professional development for faculty. CFT programs address both subject-specific and general features of teaching excellence: How faculty stimulate inquiry, generate knowledge, and present information are content-driven; general features of good teaching – such as establishing and communicating clear learning objectives, actively involving students in learning, and evaluating performance in ways that accurately reflect goals – are common to all disciplines.

CFT emphasizes developmental (formative, voluntary) consultation and program services. The greatest effort is devoted to consultation with individual faculty members to identify what is going well in their teaching and what might merit attention. The consultation process is a voluntary, confidential and collaborative effort.

Instructional support services offered at the Center include: print, video and web-based resource materials, including a monthly newsletter on teaching; consultations individually or in groups; classroom-based observation and feedback; and the Midterm Assessment Process (MAP). The MAP provides student feedback while the course is in progress. Unlike the standard end-of-semester course evaluations, MAPs are conducted around midterm to allow the instructor to make meaningful changes during the course. Many instructors use the assessment as a way to begin a dialogue with students about course content and successful learning strategies and as a tool for examining their own assumptions about teaching and learning.

The Office of Academic Planning and Assessment (OAPA) offers a broad range of programs and tools to help individual faculty members and department chairs use evaluation to improve teaching. These tools include the Student Response to Instruction (SRTI), the campus’s systematic course-evaluation system. SRTI includes both formative items, related to best instructional practices, and summative items, composed of three items that address students’ overall evaluation of the course and instruction. The SRTI was developed through a collaboration of OAPA, the Center for Teaching, the Faculty Senate Council for Teaching, Learning and Technology, and on- and off-campus measurement experts. OAPA advises faculty and departments on the appropriate use of SRTI results in promotion and tenure decisions (A Guide for Using SRTI Results to Inform Merit, Promotion, and Tenure); this includes a revised
reporting system that provides instructors and departments with comparative results. The Center for Teaching helps instructors develop strategies to respond to student feedback from SRTI.

Recognition and development programs are available to instructors who model best practices in instructional effectiveness. Programs include the College Outstanding Teacher; the campus-wide Distinguished Teaching Award; Lilly Teaching Fellows; TEACHnology Fellows; Teaching & Learning in the Diverse Classroom; General Education Fellows; Periodic Multi-Year Review; Teaching Development; and Faculty Grants for Teaching.

Much of the UMass Amherst recent effort to improve instruction has focused on effective use of instructional technology. Academic Computing, in the Office of Information Technologies (OIT), and the Center for Teaching provide support to faculty in the uses of technology, while most direct online teaching support is provided by Continuing and Professional Education (CPE).

For 10 years the Center for Teaching has offered its TEACHnology program, which emphasizes the use of technology for teaching improvement. In 2008, in conjunction with the campus-wide review of General Education (described in Standard Four), a new General Education Fellows Program was created to improve the use of technology in general education courses. General education instructors are provided with coaching and technical support as they redesign their courses.

Applications of instructional technology have outpaced the physical infrastructure. In 2004, the Provost created an Instructional Technology Task Force to determine needs and to set an agenda for improving infrastructure and support. The Task Force proposed a multi-year plan that resulted in significant improvement: About 85 percent of the university’s classrooms – all with more than 40 seats – have been outfitted with at least a basic instructional technology package. The newest campus building, the Integrated Sciences Building, has state-of-the-art instructional technology in all its rooms. The campus now has a regular program to provide computers to faculty who need them.

The integration of technology to support instruction has been further advanced with the development of the Learning Commons and the Teaching Commons. The Learning Commons opened in fall 2005 and was an immediate success. On the main floor of the W.E.B. Du Bois Library, the main campus library, the Learning Commons provides a central location for technology support from professional staff and trained student assistants 24 hours a day, five days a week. Sixty laptop computers are available for checkout and use in the library, supplementing 120 computer stations. Multi-media stations are being developed to support students using more advanced instructional technology. In addition, the Learning Commons provides short, learning tutorials on popular software through a subscription to Atomic Learning. The Teaching Commons opened in summer 2009, providing a place for faculty to work with teaching experts, instructional technology student assistants, librarians and colleagues. It extends the services provided at Academic Computing, the Center for Teaching, Continuing and Professional Education and others in a central spot atop the W.E.B. Du Bois Library.

The campus continues to innovate and improve its use of instructional software and services. The
UMass Amherst learning management system, called SPARK, now allows final course grades to be automatically uploaded to the Registrar. The student information system, called SPIRE, supports a customized grade-book feature created by campus technical staff. The Office of Information Technologies (OIT) has also created online photo rosters to help instructors better identify and personally interact with their students. UMass Amherst created its own Online Web-Based Learning system (OWL) for content delivery and online homework. This system is used extensively on campus, and has been adopted internationally, especially in chemistry. OIT has linked OWL and SPARK so students do not need to visit two separate sites to do their coursework, and instructors receive automated roster support.

The campus is a leader in the use of hand-held Personal Response Systems, widely known as “clickers,” in classrooms across campus. UMass Amherst began using Personal Response Systems in the mid-1990s and has now standardized products, services and support; instructions for use are available online. The number of instructors using these devices has grown steadily.

Advising

Academic advising traditionally has been decentralized, with each academic unit organizing services for its students. Typically, each department has a faculty member who serves as Chief Undergraduate Advisor. In some departments, especially those with relatively small numbers of majors, faculty members are assigned an advising caseload to provide most academic advising support. In some larger departments, professional advisors augment faculty and handle aspects of course registration and other high-volume activities. Professional schools have tended to organize centralized, professionally staffed advising operations, especially for lower division students. Students without declared majors, the largest single student cohort, receive advising support from Undergraduate Advising and Learning Communities (UALC), a central advising unit organized to support and transition these students into degree-granting units as quickly as possible.

Each school and college also has a designated undergraduate dean who is responsible for monitoring students’ academic progress; rendering judgments on student petitions for exceptions to academic policies; and overseeing probation, suspension, and other aspects of academic discipline. A high priority is placed on identifying and assisting students who are academically at-risk.

Generally, advising is organized around a series of registration events focused on course scheduling. Students connect with representatives from their schools and colleges at the start of the New Students Orientation prior to the beginning of each academic year. They learn about degree requirements and course options, and complete schedules for first semester. Students also may gain assistance with course scheduling during designated registration periods each semester. Students benefit to varying degrees from personal relationships with faculty and professional advising staff. Motivated students are likely to find the support they need. Yet there is no single set of advising expectations and relationships across the campus.

Appraisal
UMass Amherst has made a substantial and long-term investment in supporting highly effective teaching. Throughout its 20 years on campus, the Center for Teaching has been generously funded from a range of sources – the President’s Office and the Provost’s Office, as well as funds from collaborative ventures with various schools, colleges and other campus units, including academic computing and the Writing Program. The CFT has a strong reputation on campus and nationally, and provides a range of services to support instructors.

Instructional innovation is a hallmark of the faculty. In recent years, UMass Amherst faculty have been awarded grants from the Fund for the Improvement of Postsecondary Education, the Pew Charitable Trusts, the Davis Foundation and the National Science Foundation to support efforts to improve instruction and enhance student learning on the campus. Many innovations, including use of Personal Response Systems and the Online Web-Based Learning homework system, have been adopted across campus. Microsoft Corp. named UMass Amherst its first IT Showcase School after the Learning Commons opened in the W.E.B. Du Bois Library in fall 2005; the designation highlighted UMass Amherst excellence in the use of information technology to advance higher education.

On the advising front, UMass Amherst in the past five years has undertaken a systematic examination of academic advising practices and has taken steps to make the process more coherent, predictable and effective. Much of this work has been undertaken in conjunction with efforts to improve student retention and a comprehensive study of the first-year experience (Further description in Standard Six).

An ongoing First-Year Experience Task Force (FYTF), appointed by the Provost and the Vice Chancellor for Student Affairs and Campus Life, has evaluated first-year programs across campus, with a strong focus on academic advising. The focus on the first year was informed by two sources of research: national research into student development, success and retention, which consistently highlights the importance of the quality of the first-year experience; and UMass Amherst’s own investigations into the effectiveness of students’ early experiences on campus.

UMass Amherst’s research identified several important themes (UMass Amherst Research on the First-Year Experience). Students have consistently rated their experiences as less positive than benchmarks at other research universities in terms of the quality of advising; the extent to which the campus environment emphasizes studying and academic work; the quality of relationships with administrative personnel and offices; satisfaction with the educational experience; and willingness to recommend the university to others (National Survey of Student Engagement). In addition, students who left the university after their first year often cited anonymity and lack of personal attention, in the form of inadequate advising, too little contact with faculty, classes that are too big, and being treated like a number, not a person (UMass Amherst Non-Returner Survey). Two major challenges to improving the effectiveness of advising are achieving greater success in student use of services and addressing inconsistencies in advising across units (UMass Advising Survey).

Consistent with this evidence, the First-Year Experience Task Force identified key aspects of the advising system that must shift to provide more positive experiences and outcomes (Table 5.3):

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### Table 5.3

<table>
<thead>
<tr>
<th>Current Model</th>
<th>Desired State</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Laissez-faire</strong></td>
<td><strong>Intentional</strong></td>
</tr>
<tr>
<td>• Burden is on student to seek and find help</td>
<td>• Set and enforce expectations</td>
</tr>
<tr>
<td>• Weak “ownership” of advisees</td>
<td>• Establish clear responsibilities and hand-offs</td>
</tr>
<tr>
<td><strong>Reactive</strong></td>
<td><strong>Anticipatory</strong></td>
</tr>
<tr>
<td>• Students “below the radar” until problems arise</td>
<td>• Place students on productive paths</td>
</tr>
<tr>
<td>• Resources concentrated at end of relationship</td>
<td>• Emphasize prevention</td>
</tr>
<tr>
<td>• Most coherent component: academic discipline</td>
<td>• Rapid response</td>
</tr>
<tr>
<td><strong>Distributed and Fragmented</strong></td>
<td><strong>Distributed and Coordinated</strong></td>
</tr>
<tr>
<td>• Each unit on its own</td>
<td>• College-centered</td>
</tr>
<tr>
<td>• No common expectations</td>
<td>• Common framework, diverse implementation</td>
</tr>
<tr>
<td>• No consistent assessment and quality assurance</td>
<td>• Focus on commonalities, differences in FYE</td>
</tr>
<tr>
<td>• Highly variable resources, services</td>
<td>• “Leveling up”</td>
</tr>
<tr>
<td>• Many components, but poorly articulated</td>
<td>• Visible and effective coordination</td>
</tr>
<tr>
<td>• Wide and numerous cracks</td>
<td></td>
</tr>
<tr>
<td><strong>Weak Accountability</strong></td>
<td><strong>Strong Accountability</strong></td>
</tr>
<tr>
<td>• High demands on students, weak monitoring</td>
<td>• Improve monitoring tools</td>
</tr>
<tr>
<td>• Timely intervention very difficult</td>
<td>• “Front load” resources</td>
</tr>
<tr>
<td>• Feedback loop, self-correction weak</td>
<td>• Transparent, comprehensive assessment</td>
</tr>
</tbody>
</table>

*Adapted from Preliminary Report of the First Year Task Force, 2007.*

This framework resulted in a new approach to the first year with several key components:

- The first year must be viewed as a single, coherent experience rather than a happenstance encounter with disjointed programs and services.
- The first-year experience should have at its core a clear academic plan for each student, and an explicit advising relationship capable of supporting that plan.
- The academic plan should be supported by residentially based programs, first-year seminars and other ongoing orientation programs; and by appropriately designed and organized co-curricular and enrichment opportunities. Conceptually, the academic plan and advising relationship form a foundation on which other elements of the first-year experience are constructed (*Components of the First-Year Experience*).

The essential feature of this approach is that the campus’s diverse programs and services will organize themselves around the academic progress of the student. To permit this kind of coordination, the Task Force developed a “roadmap” for the first year based on six milestones strongly related to academic success (*Six Contact Points for First-Year Advising*). This framework establishes the sequence and timing of the core academic plan, and therefore the basis for aligning residential programs, co-curricular opportunities and other support services to that plan.

To date, the new approach to the first-year experience has resulted in several major changes:

- **Undergraduate Advising and Learning Communities** (UALC) has assumed broader campus-wide responsibility for coordinating first-year advising, and the campus has invested in staff to strengthen first-year programming.
- The campus is implementing a formal, college-based advising model. The professional
schools are sharpening their focus on the first-year roadmap, and the arts and sciences colleges, which had been operating a legacy combined advising unit for academic discipline, are developing comprehensive college-based advising organizations roughly parallel to those of the professional schools. The new units will develop coordinated strategies for advising across departments, and will emphasize success in the first year.

- The First-Year Experience Task Force is introducing the roadmap approach to all the agencies involved in first-year programming, and is beginning the process of aligning services. An early priority is coordinating first-year residence hall programming with the advising model (Further description in Standard Six).

**Projection**

UMass Amherst is challenged to maintain a focus on teaching excellence in the face of the many competing demands on faculty time, especially in a period of restricted resources. Teaching and advising are only a part of the UMass Amherst core mission, but as the institution shifts toward increasing reliance on student-based revenues the quality of the educational experience and the capacity to support student success will grow in importance.

A major instructional effort in the next year will involve implementation of the proposed General Education reforms, including transition from three-credit to four-credit courses. Instructors will be asked to revise their Gen Ed courses to the four-credit model, with the first wave of courses available for first-year students entering the University in fall 2010. The coming year will also require careful planning to preserve the integrity of the instructional program as the campus continues to respond to large revenue shortfalls.

In terms of instructional technology, most attention in the short term will be focused on design of a new academic and classroom building. Working with Burt Hill, a global architecture and engineering firm, the campus is developing guidelines for technology and learning spaces that will support emerging teaching needs and best practices. These standards will guide not only design of the new building, but also ongoing improvements to existing teaching spaces.

The priorities for academic advising are to continue implementation of the first-year roadmap and to ensure the successful transition to college-based advising. In turn, the improvements in advising and first-year curriculum will be coordinated with the campus’s more aggressive enrollment planning (Further description in Standard Six).

**III. Scholarship, Research and Creative Activity**

**Description**

The UMass Amherst is distinguished by its designation for “very high research activity” from the Carnegie Foundation for the Advancement of Teaching – a sign of prestigious scholarly projects and a notable benchmark as the flagship campus strives for recognition as a top-tier public research university. Research, scholarship and creative activity not only are integral to the UMass Amherst mission as the state’s land-grant campus, but are an underpinning of all education and outreach functions. As the campus creates and transmits new knowledge, it
prepares students to meet complex challenges ahead while also boosting quality of life and contributing to a robust economy for the benefit of people in our commonwealth, nation and world. Scholars themselves embody lifelong learning as they deepen their expertise during the course of research – and this contributes to a vital circle of new knowledge when scholars engage with students and collaborators. For these reasons, research, scholarship and creative activity are fundamental expectations for UMass Amherst faculty. Indeed, the prestige of UMass Amherst rests, to a great extent, on the research and creative activity conducted here. Whatever form this work takes – articles, books, conference presentations, patents, paintings or performances – the recognition faculty scholarship receives within each of the disciplines adds to the reputation of the whole institution and is a critical factor in advancing UMass Amherst, its students, partners and many other constituents.

Indicators of research, scholarship and creative activity reveal a steady rise in research activity in the past decade. UMass Amherst research and development expenditures – the productivity gauge used for national comparisons – have steadily climbed in the past 10 years for projects sponsored by both federal agencies and other sources, as shown in Figure 5.3. In fiscal year 2008, total campus research expenditures reached a high of nearly $153 million. Just over half those expenditures derived from federal sources. The National Science Foundation was the single greatest source of federal funds, indeed of all sponsored funds (Sponsored Activities Annual Report for Fiscal Year 2008^). Yet even with rising research expenditures, UMass Amherst’s national ranking among public research universities has remained fairly flat; the campus was positioned among the top 75 public research universities based on total research expenditures in 2006, the most recent year for which national comparisons are possible (Figure 5.3). Among all research universities, public or private, UMass Amherst ranks in the top 100 for federally funded research; it ranks 76 when discounting for the absence of a medical school on the campus.
The faculty’s scholarly activity also may be broadly gauged by the number of new competitive proposals submitted to federal research sponsors each year, and the success rate in proposal funding. Figure 5.4 shows that the number of new competitive proposals annually submitted by UMass Amherst faculty has generally, if incrementally, progressed during the past few years. The number of competitive proposals submitted climbed to 1,169 in fiscal year 2008. Meantime, the percentage of new competitive proposals funded – the success rate – has hovered around 43 percent since 2005. In fiscal year 2008, for example, 491 new competitive proposals were funded, representing a 42 percent success rate for the year (Figure 5.4).
Research Facilities

During the past decade, some key research facilities have been built or substantially renovated. This has fostered growth in some UMass Amherst research programs. Newly constructed or renovated facilities in the past 10 years include: the Animal Care Facility, the Computer Science Building, Engineering Lab II, the Integrated Sciences Building, Morrill Science Center Fourth Floor, Skinner Hall, the Studio Arts Building and the UMass Recreation Center. These facilities are among those described in the 2007 UMass Amherst Building Condition Report as “our best buildings, and there are precious few of them supporting instruction and research.”

Administrative Support

The Office of the Vice Chancellor for Research and Engagement supports the pursuit of UMass Amherst scientific discovery and scholarly activities. The staff aims to enable the translation of student and faculty work into social, economic, technical and environmental advances – and to increase campus capacity for research, scholarship and innovation by fostering relationships between faculty and the institutions that sustain their work.

Leading the Office is a newly named Vice Chancellor, whose direct reporting line to the Chancellor – recently re-established – signals an increasing emphasis on research and the goal of advancing UMass Amherst into the top tier of public research universities. The research office had reported directly to the Chancellor, then moved to the Provost’s purview from 2004 to 2008; the chief officer’s title was Vice Provost for Research during that time. In 2008, the position became Vice Chancellor for Research and Engagement, reflecting the re-instatement of a reporting line and an expectation of close collaboration with all vice chancelleries. With this
configuration, the Vice Chancellor has greater authority and resources to implement procedures and policies that enhance the campus’s research profile and assist faculty in securing outside sponsored research. As the title suggests, the Vice Chancellor also focuses on interdisciplinary research activities to compete for more lucrative federal grants, and will promote more partnerships with communities, industry and other collaborators.

Three units now report to the Vice Chancellor for Research and Engagement, indicating the scope of administrative support for research and scholarly activity:

- **Research Affairs** – responsible for providing information services and training that promote the use of external sponsorship. This includes Grant and Contract Administration, which is responsible for the review, processing and submission of proposals to external sponsors; for negotiations and execution of awards; and for post-award oversight of grants and contracts. Also within this unit are Compliance services for human and animal subjects, which help ensure that research is conducted ethically and in accordance with the complex regulatory environment. The unit also administers internal grant programs.

- **Commercial Ventures and Intellectual Property** – responsible for technology transfer: evaluating, protecting and commercializing the inventions and discoveries of academic researchers on the Amherst campus, including oversight of spin-off companies based on UMass Amherst intellectual property. The unit assists faculty, staff and students in securing sponsored research funds to transform ideas, inventions and creative works into commercially viable products, processes and services with economic payback to the inventors, the sponsors and the university. This office started **UMass Amherst TechCast**, a podcast series spotlighting high-potential UMass Amherst technologies available for licensing.

- **Research Liaison & Development** – responsible for supporting faculty in large interdisciplinary research with economic-development potential. The office also handles research communication and marketing for internal and external audiences, publishing a monthly e-newsletter, **Research ACCESS**, and an annual printed report, **Report on Research**. This office – established in 2005 with the merger of two former units, Economic Development and Science & Technology Advancement – reflects a growing focus on collaborative research activities, particularly with industry partners.

The Office of the Vice Chancellor for Research and Engagement works with two established and complementary forums to encourage communication among and between UMass Amherst research faculty and administrators: the Deans’ Research Meeting, convened five times per academic year, gathers all deans and associate deans for discussion about campus research; the Faculty Senate Research Council meets monthly during the academic year to help shape policy, provide guidance and review internal grant programs.

Among promotional efforts started or enhanced in the past 10 years, the Office of the Vice Chancellor for Research and Engagement has expanded the annual **Research Recognition Dinner**. Until recently, the event chiefly honored the Samuel F. Conti Faculty Fellows, eminent scholars nominated by peers to receive a stipend and a year-long break from teaching to pursue research. In 2004, the dinner expanded to more fully recognize outstanding UMass Amherst

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discovery activities and now annually honors high-achieving faculty with several awards. ScholarWorks@UMass Amherst\(^\text{^^}\), administered by UMass Amherst Libraries, is a digital showcase of campus research and scholarly activity. ScholarWorks both archives and highlights faculty scholarship, even offering a Paper of the Day.

**Research Policies, Compliance and Ethics**

UMass Amherst works to create an environment in which research is conducted responsibly. The Office of the Vice Chancellor for Research and Engagement maintains a repository of relevant policies and guidance related to research. Among the categories covered are: Cost Accounting Standards; Financial and Budgetary Policies; Health and Safety Policies; and Investigator, Ethics and Attribution Policies. These policies are accessible online and are introduced during campus orientations for new faculty\(^\text{^^}\). In addition to these policies, the research Compliance staff provides crucial information on regulations and issues regarding Animal Use, Biological Safety, Human Subjects, and Responsible Conduct. Information and updates are available online \(^\text{^^}\). Detailed training is offered to faculty based on research focus and requirements. The Faculty Senate Research Council\(^\text{^^}\) provides critical input for developing new campus research policies; the Council also helps review and maintain currency of existing policies.

**Appraisal**

**Notable Strengths and Gains**

Faculty have been honored for eminent scholarship in disciplines including Afro-American studies, chemical engineering, computer science, electrical and computer engineering, food science, linguistics, microbiology, speech-language pathology and polymer science. Strengths have been leveraged in some cases into nationally and internationally recognized research in broader areas, such as biofuels, clean-energy economics, computer networking, materials science and nanotechnology. With its disciplinary strengths and scientific synergies, UMass Amherst is poised for advances in both basic and applied research – and will deliver new knowledge and innovations to meet society’s challenges in key interdisciplinary areas. Life sciences and advanced energy, two broad interdisciplinary areas, are the focus of strategic research activity for the campus.

Large interdisciplinary research projects have emerged at a quickening pace on campus, reflecting the scope and complexities of society’s challenges. Significant federal funding and robust collaborations are yielding UMass Amherst centers and institutes with potential for breakthrough research in areas of national priority. These programs build upon competitive strengths in the campus research enterprise.

To capitalize on interdisciplinary discovery and sponsorship opportunities, the Office of the Vice Chancellor for Research and Engagement is working to assist scholars in building research projects into long-term programs supported by substantial funding and involving new partnerships on campus and elsewhere in academia, government and industry. Researchers and deans may use an updated effort reporting system to better track and develop interdisciplinary efforts. Interdisciplinary work – marked by multiple co-principal investigators from different
departments – is now featured in the Sponsored Activities Annual Report to highlight and encourage this work. The UMass Amherst Advanced Energy Portal represents easily accessible online information meant to connect researchers and collaborators – in this case offering information about campus researchers working on advanced energy issues in the areas of harvest, use, conservation and impacts.

UMass Amherst has some 80 centers and institutes conducting long-term research in often interdisciplinary programs. Of these, 10 are national centers and institutes, which are federally funded and focus on national research priorities, such as energy and the environment (http://www.umass.edu/research/nationalcenters.html). A few notable UMass Amherst centers and institutes, which illustrate this trend, include:

- The Engineering Research Center for Collaborative Adaptive Sensing of the Atmosphere (CASA) supported by the Engineering Research Centers Program of the National Science Foundation. Established in 2003, CASA is a $40 million enterprise over 10 years that involves multiple academic institutions and dozens of companies. CASA researchers are working to revolutionize the ability to observe, understand, predict and respond to hazardous weather events. The departments of Electrical and Computer Engineering and Computer Science lead the endeavor. Massachusetts has invested $5 million; these first-of-a-kind research matching funds helped secure NSF sponsorship.

- The UMass Amherst Materials Research Science and Engineering Center (MRSEC), repeatedly supported by the National Science Foundation. The Center builds on a tradition of excellence in multidisciplinary research in polymer science and engineering and is notable for education and outreach activities. UMass Amherst is home to the longest running MRSEC in the country; the center was established in 1974 as a Materials Research Laboratory.

- The Center for Hierarchical Manufacturing (CHM), a National Science Foundation Nanoscale Science and Engineering Center awarded in 2006. The NSF will invest $36 million over 10 years to study nanoscale manufacturing – the tools and processes for fabricating engineered nanoscale materials and particles, and assembling and integrating them into larger-scale structures, devices and systems. Massachusetts has invested $7 million. The CHM operates under the umbrella of MassNanoTech Institute, the campus-wide initiative for nanoscale science and engineering. Dozens of faculty investigators from multiple colleges and departments are working in the field of nanotechnology, with granting from a variety of federal and industry sources. Ongoing efforts include licensing of key technology, acquisition of specialized characterization equipment, and the education and training of talented graduate students. MassNanoTech provides a single point of contact for collaborators.

- A new Energy Frontier Research Center (EFRC) will be established at UMass Amherst with recently announced sponsorship from the U.S. Department of Energy. The center, linked to The Environment Center on campus, has the potential to draw more than $16 million over five years. A major focus will be creating and testing new polymer-based photovoltaic structures for the conversion of sunlight into electricity. In particular, materials that self-assemble naturally at the molecular and nanoscale level will be sought to optimize performance. More information is available at http://www.umass.edu/loop/talkingpoints/articles/88321.php.
Likewise, there has been an acceleration in UMass Amherst technology disclosures, licensing agreements, patent activity and start-up companies in the past decade, particularly in the past five years. These gains in technology transfer are significant as indicators of campus innovations with high potential to boost both quality of life and economic development, even as they yield financial returns to scientists and campus. UMass Amherst has worked to build an infrastructure that supports technology transfer: In 2005, a Director of Commercial Ventures and Intellectual Property joined the Research office after the position had been unfilled for several years; two new licensing associates subsequently joined the staff. Subsequently, numbers of disclosures, patent applications and awarded patents have increased, as shown in Table 5.4.

Table 5.4

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Invention Disclosures</td>
<td>30</td>
<td>28</td>
<td>37</td>
<td>45</td>
<td>56</td>
</tr>
<tr>
<td>Patent Applications Filed</td>
<td>20</td>
<td>13</td>
<td>26</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>Patents Issued</td>
<td>7</td>
<td>5</td>
<td>8</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Licenses Executed</td>
<td>15</td>
<td>20</td>
<td>8</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>License Revenue (in thousands $)</td>
<td>$543</td>
<td>$666</td>
<td>$1,330</td>
<td>$562</td>
<td>$697</td>
</tr>
</tbody>
</table>

UMass Amherst intellectual property also has jump-started several new companies in recent years. Some examples:

- In the advanced energy sector, Qteros, formerly SunEthanol, and Anellotech both use novel technologies to develop biofuels. Qteros, in round B of venture capital funding, is founded on technology developed by Microbiology Professor Susan Leschine, which uses a microbe to convert plant matter into ethanol. The company is headquartered in Marlborough and has a pilot manufacturing facility in Springfield. Anellotech, using technology developed by Chemical Engineering Assistant Professor George Huber, is working with a chemical catalytic process to convert cheap biomass into environmentally friendly biofuels, or “green gasoline.”

- In food sciences, Wesfolk Corp. was incorporated in 2008 to commercialize a portfolio of work by UMass Amherst researchers, including three Food Science professors, Eric Decker, D. Julian McClements and Yeonhwa Park. The company works with advanced encapsulation technology with potential application for the beverage industry; Wesfolk’s work is based research that could lead to production of conventional higher-fat foods that are digested as if they were low-fat.

The UMass Amherst recently has engaged with the Commonwealth of Massachusetts and a variety of community partners to launch initiatives that advance research while stimulating economic development. For instance, the Greater Springfield – UMass Amherst Partnership Team, which also involves the Governor’s Office and the UMass President’s Office, seeks to bolster Springfield with “green economy” and “creative economy” programs linked to the campus’s arts and advanced energy expertise. The Pioneer Valley Life Sciences Institute, a partnership between the campus and Baystate Health, combines UMass Amherst life sciences...
research expertise with clinical expertise at Baystate Medical Center in Springfield to better position the partners for discovery and sponsorship opportunities. Since its founding in 2002, the Pioneer Valley Life Sciences Institute has attracted more than $20 million in sponsored activity; it employs about 40 people in the city of Springfield.

Representing even greater potential, UMass Amherst is connecting on concrete ways with the recently established Massachusetts Life Sciences Center (MLSC), which is the nucleus of a $1 billion Massachusetts investment package enacted in 2008 and meant to position the commonwealth as a global leader in life sciences research and economic activity. UMass Amherst already has benefitted from MLSC research and faculty awards; the campus is forming plans for a major life sciences research center that would significantly boost investigations and strengthen ties to the MLSC.

Undergraduate research is a highlight at UMass Amherst. The campus hosts more than a dozen Research Experience for Undergraduates (REU) programs. The programs provide talented undergraduates with summer research experiences under tutelage of campus scientists in a variety of fields; sponsors include the National Science Foundation, Howard Hughes Medical Institute and the UMass Amherst Office of the Provost. The campus also hosts the annual Massachusetts Statewide Undergraduate Research Conference, which highlights the work of some 500 students attending UMass Amherst and other institutions. These well-established programs represent campus efforts to prepare students starting at the undergraduate level with rigorous and exciting training; this is essential for professional success, and helps create a pipeline of high achievers for work in academia, government and industry.

**Striving for Improvement**

Data and activities demonstrate a productive and high-quality research enterprise at UMass Amherst. Such indicators also suggest significant room for improvement in the coming decade. UMass Amherst’s overall goal is to advance as one of the top public research institutions in the country because of the important role research plays in fulfilling the campus mission. To appreciably improve its national research ranking, UMass Amherst will need to more than double its share of federal research expenditures, the standard for nationwide comparisons. Such a level of research productivity will be difficult to attain during a 10-year period; UMass Amherst must move strategically to realize significant advancement.

Increasing faculty engagement in research is central to increasing the campus research profile, as discussed in the Framework for Excellence. That means adding faculty; orienting faculty replacement hires in appropriate departments toward better-funded research areas; and increasing research activity among existing faculty. The budgetary environment limits the campus’s ability to grow the faculty in the short term; faculty growth will be a point of emphasis as new resources become available. It also will be essential that the campus identify appropriate and adequate sources of funding for faculty startup needs. Replacement hires provide a near-term possibility to increase research activity; however, in the case of junior faculty hires, research return on investment is not typically realized for three to five years. Increasing research activity among existing faculty is difficult, but should be part of an overall strategy. One view of the context for
overall improvement: Between fiscal year 2004 and fiscal year 2008, about 46 percent of tenure-system faculty on campus reported sponsored activity expenditures (Table 5.5).

Table 5.5

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tenure System Faculty</th>
<th>Number with Awards</th>
<th>% with Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2004</td>
<td>948</td>
<td>435</td>
<td>45.9%</td>
</tr>
<tr>
<td>FY2005</td>
<td>944</td>
<td>415</td>
<td>44.0%</td>
</tr>
<tr>
<td>FY2006</td>
<td>982</td>
<td>453</td>
<td>46.1%</td>
</tr>
<tr>
<td>FY2007</td>
<td>990</td>
<td>456</td>
<td>46.1%</td>
</tr>
<tr>
<td>FY2008</td>
<td>1,001</td>
<td>461</td>
<td>46.1%</td>
</tr>
</tbody>
</table>

Definitions and Notes:
Includes active tenure system faculty including faculty on sabbatical or on leave with pay as of the fall census date (October).
Includes all tenure-system faculty including those in administrative positions (e.g., Provost, Dean)
Includes all sponsored activity expenditures with dollar values greater than or equal to $100.
Both Principal Investigators and Co-Principal Investigators are counted.
Awards are credited according to the fiscal year in which the funds were expended.
FY2004 Tenure System Faculty number includes 32 people who retired in the middle of FY2004.

Sources: Financial Records and Human Resources administrative systems.

Facilities are another crucial factor for a robust research enterprise. Here, UMass Amherst faces particular challenge. While some facilities to support research have been constructed or renovated in the past decade, the campus needs other modern research-intensive facilities to advance its research enterprise. Complaints about inadequate facilities stand out in a faculty survey recently conducted by the Collaborative on Academic Careers in Higher Education (COACHE) at the Harvard University Graduate School of Education. The COACHE Survey Results^ were presented on campus in February 2009. Adequate facilities are integral to world-class research, whether because such facilities enable growth in established and emerging programs, or because these facilities help attract talented new faculty. Indeed, deans with departments in the laboratory sciences, particularly the physical and biological sciences, find it increasingly difficult to recruit promising faculty because campus facilities for wet chemistry are not comparable to those provided at competing institutions (UMass Amherst Building Condition Report^).

Research support services, which assist faculty in translating ideas into funded grants and contracts, constitute a third important factor that must be improved to build the campus research enterprise. The need for improved research support – including assistance identifying funding opportunities, proposal preparation, travel funds, and more time for research – likewise strongly emerged in the COACHE Survey Results^ presented in February 2009.

Projection
Framework for Excellence outlines several strategies to help advance UMass Amherst into the top tier of public research universities nationwide; a new Vice Chancellor for Research and Engagement will help guide campus research services. Strategies for improvement are interconnection and fall into the categories of research sponsorship, faculty research activity, research facilities and administrative support.

- The campus will seek to continue – and intensify – its upward trend in successful pursuit of larger grant opportunities, particularly federal sponsorships. Much of this effort will aim to leverage research strengths in life sciences and advanced energy.
- A more robust research enterprise also will require identifying and obtaining research funds from additional sources, including the state and industry. To facilitate connections with industry, the campus must act quicker and more nimbly in negotiations. The campus also seeks more expertise to establish long-lasting and mutually productive relations with industrial partners. The possibility of industrial partnership space in new science buildings will be investigated and evaluated.
- The international arena also is a potential source of more sponsored research funding. International research can be more expensive to secure and conduct, but the campus will work to expand international opportunities for faculty.
- The Office of the Vice Chancellor for Research and Engagement will work with the Office of Government Relations to identify opportunities for faculty funding, especially in the federal government arena, and in developing more specific plans to actively support faculty to receive grants from state and federal agencies. This effort must be systematic and must be regularly evaluated for effectiveness. Similarly, the Development office must work closely and effectively with Research to take full advantage of industrial partnerships and foundation funding opportunities.
- Faculty growth will remain a high priority and a driver as new budgetary resources become available. Without sacrificing teaching quality, research productivity potential will be an emphasis in new faculty hires in appropriate fields.
- If research activity improves, an increase in post-doctoral appointments will be possible; this will further accelerate research activity. The campus aspires to increase by 50 percent its average annual post-doctoral appointments, which have averaged 160 for the last few years.
- UMass Amherst is in a strong building cycle, but research facility needs are so great that relief will be neither quick nor widespread on campus. Close coordination between academic planning and facilities planning is required to prioritize building projects. The campus also will continue facilities planning with an eye to positioning the campus for more large federal grants when appropriate.
- The Office of Research must become more efficient and effective, and might grow as research activity increases. New programs will be established and old programs retooled to improve administrative support; appropriate procedures and technologies that help meet this objective.

IV. Outreach

Description
The Division of Outreach at the University of Massachusetts Amherst engages the university with the community on economic, social, cultural, environmental and educational issues. Outreach applies the teaching, research, and knowledge resources of the university with benefit to the public throughout the Commonwealth, nation and world. In so doing, Outreach supports the university’s public engagement and land-grant mission and its responsibilities to the Commonwealth of Massachusetts. A key milestone for UMass Amherst – and an indicator of outreach success – was the campus’s January 2009 Community Engagement designation from the Carnegie Foundation for the Advancement of Teaching. The campus marked this milestone with a new publication, Portraits of Community Engagement, which highlights programs that exemplify UMass Amherst efforts to substantially engage with partners and people throughout Massachusetts.

Use of the word “outreach” in an academic context is relatively recent, but the concept is as old as our public universities themselves. The federal Morrill Act of 1862 created “land-grant” universities by awarding each state an allotment of land to fund a new public university. That legislation described the nature of the beneficiary as a kind of student different from those of the private institutions of the time. The Morrill Act supported “one college where the leading object shall be … to teach such branches of learning as are related to agriculture and mechanic arts … in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.” By fostering outreach, UMass Amherst fulfills its mission as a land-grant university.

At UMass Amherst, the Division of Outreach provides innovative lifelong learning programs for adults regardless of ethnicity, occupation or socioeconomic status. More than 30 degree or certificate programs are offered at the undergraduate or graduate level, and some 16,000 students enroll in over 1,200 courses. Outreach also works to enhance the public perception of the university as a responsible and valued institutional citizen. The Division of Outreach acts as a catalyst for the creation of community collaborations that enhance research and teaching while advancing economic development and improving quality of life. The university has more than 1,000 faculty-led projects impacting 280 communities throughout Massachusetts.

As these numbers suggest, outreach work infuses virtually every academic function: All schools and colleges have outreach plans and conduct significant work; many other campus academic units – such as centers, institutes and programs – facilitate external partnerships and conduct extensive outreach programs, often across disciplinary lines and departmental borders. Thus, UMass Amherst outreach programs are delivered in many ways and by many members of the campus community.

The UMass Amherst Division of Outreach offers programs through several units devoted completely to external constituencies:

- Continuing & Professional Education annually delivers UMass Amherst instruction to thousands of students on and off campus. The instruction takes the form of individual classes – and academic programs at the undergraduate, graduate, professional development and certificate levels. Students enrolled through CPE include working...
professionals building their skills base, college students designing their own majors, and adults learning more in specific areas of interest.

- **University Without Walls** conducts programs for adult learners seeking to complete bachelor’s degrees. Instruction is delivered online, in a blended format, or through weeknight and weekend courses.

- **UMass Amherst Extension** addresses public concerns of high priority for the Commonwealth. Part of the national Cooperative Extension System, it sponsors statewide programs in Agriculture and Landscape, Natural Resources & Environmental Conservation, Nutrition Education, and the Massachusetts 4-H Youth Development Program. These programs, often in partnership with other organizations, offer research and educational opportunities including workshops, conferences, distance education, training events, consultations and applied research.

- **WFCR 88.5FM** delivers National Public Radio news and music for western New England. For more than 45 years, the station has been broadcasting to western and central Massachusetts, northern Connecticut, southern Vermont and New Hampshire. It aims to provide the area with diverse and high-quality news, information, music and cultural programs. The station also is supported by Five Colleges Inc.

- **The Arts Extension Service**, with sponsorship from the National Endowment for the Arts and the Massachusetts Cultural Council, works to support the creative economy. It delivers professional arts-management education through workshops and training programs; an online certificate program in Arts Management; and an online bachelor’s degree with a concentration in Arts Administration, the first of its kind in the nation. Arts Extension is also a leading publisher of arts management books; it offers an array of customized conferences and training programs, as well as research services for state, regional and local arts agencies.

- **The Office of Creative Economy**, develops new performing arts activities and programs that contribute to local and regional prosperity by creating jobs and opportunities and by generating revenue. These programs seek to develop highly collaborative partnerships in the region to promote the arts, encourage youth participation in the arts, engage our communities, and position UMass Amherst as a premier environment and facilitator for innovative arts activity.

The **Faculty Senate Council on University Service, Public Service and Outreach** was established in September 2000 to bring together faculty representatives to set a campus agenda for outreach activities. The Council believes the University is at a critical juncture in its relationship to the Commonwealth; it works to improve programs that deliver campus expertise to constituents.

**Appraisal**

As part of its land-grant mission, UMass Amherst extends its resources for lifelong education to a broad range of learners, industries and organizations through a strong combination of educational programs. These initiatives provide an important component of the institution’s move toward the top ranks of public research universities.

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In addition, outreach efforts – whether delivered through the Division of Outreach or in other ways – foster significant and important collaborative reciprocal partnerships between the university and external constituencies. UMass Amherst outreach programs provide platforms for community engagement, especially around issues of workforce and economic development.

The campus takes special pride in the recent news that UMass Amherst has been selected to receive the Community Engagement Classification from the Carnegie Foundation.

**Projection**

Outreach programs and services will continue to strengthen and expand. The campus will explore new ideas and re-examine existing practices to improve the development and delivery of education built on campus academic resources. A commitment to fiscal responsibility, responsiveness, innovative programming and a dedication to lifelong learning will continue to characterize outreach efforts. Through collaborations and programs that reach across and beyond the university, the campus will strive to expand and extend the work of faculty to reach new audiences and to achieve broader impacts. Through technology and innovation, outreach programs will contribute to the evolution of UMass Amherst as an accessible institution that provides a seamless and sustained set of learning opportunities in response to evolving needs of the Commonwealth, its industries, communities and people.

In particular, increasing market share of non-traditional learners, an expanding cohort, is a concrete step to cope with the declining numbers of high school graduates and to produce strong revenue growth for the academic community.

UMass Amherst likewise will make strides with initiatives that engage community partners with mutually beneficial research activity, program delivery and economic development. Important partners will include the city of Springfield, the largest city in the region, the third-largest city in Massachusetts – and a city threatened by declines in its economic base; new collaborations with Springfield, described in the Scholarship, Research and Creative Activity section of this chapter, will lead to development of other fruitful connections in the coming decade, particularly in the areas of creative economy and green industry development.

To further fulfill the UMass Amherst mission as a land-grant institution and to provide support for the Commonwealth and its citizenry, the campus will work toward the following goals, as outlined in the *Framework for Excellence*:

- The campus will seek to establish a permanent office in Springfield. It would house numerous and varied initiatives in the areas of arts and educational programs, architectural assistance, and consultation in public health and nutrition. The office would coordinate and unify current initiatives and encourage faculty and students to engage in new projects to benefit the campus and the city.
- UMass Amherst will expand community and distance-learning programs with ongoing improvements in marketing, program development and services for adult and non-traditional students. These courses provide valuable revenues for the campus, as well as needed curriculum for students on the campus and for the growing population of students

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**Feedback**

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from around the country and the world who increasingly choose online and blended modalities for their education.

- The campus will seek to integrate its summer session into the campus academic plan in two ways: by using it to supplement curricular offerings during the fall and spring term, and by exploring avenues to attract to campus special groups of students as part of revenue enhancement activities. UMass Amherst has a stock of buildings and student housing not being used effectively for three months of the year. A more effective summer session will solve problems resulting from oversubscribed courses by expanding the academic year and by providing the campus opportunities for income-generating programs. In addition, the campus location and involvement in the region’s cultural life will be leveraged to create a campus summer life that is vibrant and meaningful to students and the region.

- UMass Amherst will seek to increase and enhance partnerships with the region’s community colleges. These relationships will address improved recruitment and retention of students from those institutions and create expanded potential for positive experiences for adult students within our programs.