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Glenna Schweitzer
Associate Vice Provost and Executive Director
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Introduction

The Michigan Almanac provides a consolidated source of data and commentary covering major activities of the University of Michigan Ann Arbor campus. This document includes sections on student admissions and enrollment, costs of attendance, student achievement, faculty and staff statistics, diversity indicators for all parts of the campus community, teaching and learning activities, research and technology transfer, budget, development, space, sustainability, and academic rankings.

The Almanac has been prepared with several different audiences in mind. Members of the University administration, faculty and staff who manage and monitor any of the institution’s programs should find this a useful source of information. Others who have interests in U-M – the state’s legislators and government officials in Lansing and Washington, prospective and current students and their families, donors, other higher education institutions, and the media – will also find information of value in this document.

Through the Almanac, the University aims to present a balanced and factual picture of all facets of the institution. The U-M applauds its successes, but also tries to be objective about areas that need improvement. The data has been collected from public sources, and, when possible, from readily accessible reports, so that the charts and tables in the Almanac can be replicated.

The U-M Health System is not presented in Almanac data and charts, except in a few instances. The University’s Flint and Dearborn campuses are also excluded from this document.

When relevant, the University is compared to its peer institutions, sometimes as individual universities or as groups of universities with similar characteristics. The membership of these peer comparison groups is listed in Appendix A.

This fifth edition of the Michigan Almanac was published in January 2015. Any chart that has been updated since the fourth edition (July 2014) is marked with a star: ⭐.

Questions regarding the Almanac and its contents can be directed to michigan.almanac@umich.edu. The University of Michigan hopes that readers find the Almanac to be a valuable window into the institution’s characteristics and operations.
Chapter 1  Overview of the University

The University was founded in 1817 as the Catholepistemiad, or University of Michigania. In 1821, it was officially renamed the University of Michigan. Originally located in Detroit, the institution’s home moved to Ann Arbor in 1837. One of the original buildings on the Ann Arbor campus still stands and is used today as the President’s house.

The first Ann Arbor classes were taught in 1841, at which point the U-M had two professors and seven students. The first commencement was held in 1845 to recognize the graduation of 11 men. Women were first admitted in 1870.

The University has grown to include 19 schools and colleges (table at right), covering the liberal arts and sciences as well as most professions. Student enrollment surpassed 1,000 by 1865, 10,000 in 1936, and 40,000 in 2006. The fall 2014 enrollment of undergraduate, graduate and professional students was 43,525. The U-M provides campus housing to 9,600 undergraduate students in 18 residence halls and apartment buildings, and it plans to open a new graduate student residence in 2015.

The current faculty consists of 3,051 individuals who are tenured or on a tenure-track. Lecturers, clinical faculty, research professors, librarians, and archivists add 3,801 to the Ann Arbor campus academic staff, for a total faculty headcount of 6,852. The staff count is 14,003.

This chapter presents an overview of the University. The chapters that follow will provide further detail on all aspects of the institution.

For More Information
Bentley Historical Library
bentley.umich.edu

Charts in Chapter 1
1.1  School/College Origins.
1.2.1  Student Enrollment, Fall 1841-2014.
1.2.2  Student Enrollment by Level, Fall 1960-2014.
1.3  Composition of U-M Ann Arbor Campus Community, Fall 2014.
1.4.1  Operating Revenues for the Ann Arbor Campus (including U-M Health System), Adjusted for Inflation, FY2004-2014.
1.4.2  Operating Revenues for the Ann Arbor Campus (including U-M Health System) by Percent, FY2004-2014.
Since World War II ended, enrollment has more than doubled, from 19,176 in 1946 to 43,625 in 2014.

1.2.1 Student Enrollment, Fall 1841-2014.

The fall enrollment headcount is available starting in 1841 and continuing about every five years to 1929. The first class in 1841 consisted only of undergraduates (6 freshmen and 1 sophomore). Graduate student enrollment began sometime in the 1840s, since the first graduate degree (a Master of Arts) was conferred in 1849, followed by the first M.D. degree in 1851. Total enrollment is reported unless records provide an accurate accounting of the separate undergraduate and graduate student population.

The enrollment valley in the early 1940s followed by a rapid rise and peak in the late 1940s parallels the U.S. involvement in World War II followed by the war’s end and the passage of the GI Bill. The subsequent enrollment valley – reaching its low point in 1985 – synchronizes fairly closely with the end of the post-World War II baby boom’s prime college years.
Undergraduate enrollment has risen fairly steadily since 1960, with a few periods of decline. Graduate and professional enrollment reached an initial peak in 1975, underwent a period of decline through about 2000, and only returned to the 1975 level again in 2007.

### 1.2.2 Student Enrollment by Level, Fall 1960-2014.

![Graph showing student enrollment by level from 1960 to 2014](image_url)

The University community includes 43,625 students and 6,852 faculty members.

### 1.3 Composition of U-M Ann Arbor Campus Community¹, Fall 2014.

![Pie chart showing the composition of the U-M Ann Arbor Campus community.

Undergraduate Students 43%
Graduate Students 13%
Professional Students 11%
Tenured/Tenure-Track Faculty 5%
Lecturers 1%
Clinical Faculty 2%
Research Faculty 1%
Research Fellows 2%
Other Academic 1%
Staff 21%


Undergraduate Students.......................... 28,395
Graduate Students.................................. 8,238
Professional Students............................ 6,992
Tenured/Tenure-Track Faculty................. 3,051
Lecturers ............................................ 842
Clinical Faculty................................. 1,565
Research Faculty.................................. 874
Other Academic.................................. 429
Research Fellows................................. 1,145
Staff.................................................. 14,003

Ann Arbor Campus Total¹....................... 65,625

The total faculty count includes tenured & tenure-track faculty, lecturers, clinical faculty, research faculty and other academic (not-on-track faculty, adjunct and visiting faculty adjunct and visiting research faculty, and emeritus faculty). Research fellows, which may also be called post-doctoral fellows) are not included in faculty headcounts. Staff includes regular staff, clinical interns and professional specialists. The staff category does not include graduate student instructors, graduate student research assistants, or graduate student staff assistants.

¹ Excludes the U-M Health System (see Appendix E for definition).
Revenues (adjusted for inflation\(^2\)) for the Ann Arbor campus and U-M Health System taken together increased from $4.79 billion in FY2004 to $6.37 billion in FY2014. The state appropriation in inflation-adjusted dollars declined from $394 million in FY2004 to $279 million in FY2014.

### 1.4.1 Operating Revenues for the Ann Arbor Campus (including the U-M Health System), Adjusted for Inflation\(^2\), FY 2004-2014.

![Bar chart showing operating revenues for the Ann Arbor campus and U-M Health System from FY2004 to FY2014.](chart1)

### 1.4.2 Operating Revenues for the Ann Arbor Campus (including the U-M Health System), by Percent, FY 2004-2014.

![Bar chart showing operating revenues as a percentage from FY2004 to FY2014.](chart2)

**SOURCE:** University of Michigan Financial Reports.

Data based on the annual audited financial reports. “Net student tuition/fees” is calculated by subtracting student scholarships from total tuition and fees for the fiscal year.

\(^2\) Based on FY 2014 U.S. Consumer Price Index.
Chapter 2  Undergraduate Students: Admissions & Enrollment

Goals
Establishing optimal admissions and enrollment levels is a complex process influenced by many factors. A central priority for the University is access; its goal is to enable qualified students to attend regardless of socioeconomic background. For a number of years, the U-M has provided financial aid packages that meet full cost of attendance to admitted students from Michigan with need (see Chapter 3). The University also seeks to enhance the student learning experience by decreasing the student-faculty ratio through faculty growth, encouraging participation in international programs, supporting academic multicultural initiatives, keeping pace with instructional technology and facilities, and intensifying undergraduate action-based learning opportunities (see Chapter 9).

Overview
In this chapter, we provide indicators that detail the application, admission and enrollment trends for new freshman and undergraduate transfer students, and describe our students in terms of academic preparation and geographic origins. (Diversity data is found in Chapter 7.)

Student interest in the University continues to grow. Freshman application numbers have nearly doubled since 2004, with recent growth due in part to adoption of the Common Application. As a highly selective institution, U-M offers admission to fewer than half of those who apply. The size of the enrolling freshman cohort has hovered near 6,000 for the past five years, which met or exceeded annual targets.

Undergraduate students who enroll in the U-M have excellent grade point averages and standardized test scores. The Office of Undergraduate Admissions describes U-M students as “bright and inquisitive, coming from a diverse range of backgrounds, and driven to succeed.” These students are attracted to the University of Michigan for numerous reasons, including the institution’s reputation, the quality of the faculty and academic programs, and the campus atmosphere.1

The U-M offers 250 academic programs for undergraduates, opportunities for international study, more than 1,400 student clubs, 27 NCAA Division I teams, and fine arts offerings by and for students and professionals, all of which help earn the institution high marks from the U.S. News and World Report Best Colleges guide, QS World University Rankings, and Kiplinger’s Personal Investing Best Values in Public Colleges, among others (see Chapter 12). As the top-ranked public university for research funding, U-M offers students many hands-on research opportunities. The cosmopolitan campus community and college town atmosphere make it one of the most interesting places to live in the country.

The University actively pursues students from the state of Michigan, the nation and around the globe. In fall 2014, undergraduate students on campus came from 82 of 83 Michigan counties, all 50 states, and 91 countries. Fifty-nine percent of currently enrolled undergraduates are in-state students. The diverse origins, backgrounds and experiences found in every entering class contribute to the varied interests and characteristics of the student body.

For More Information
Office of Undergraduate Admissions
www.admissions.umich.edu/
Office of the Registrar, Enrollment and Degree Reports
ro.umich.edu/enrollment/

Chart updated since the July 2014 edition.

Charts in Chapter 2

- 2.1 Applications, Admission offers, and Enrollment for New Freshman and Undergraduate Transfer Students, Fall 2004-14.
- 2.2 Selectivity Rates for New Freshman and Undergraduate Transfer Students, Fall 2004-14.
- 2.3 GPA and Standardized Test Scores of New Freshman Students, Fall 2004 and Fall 2014.
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- 2.7 Geographic Origin of New freshmen, U-M, Public Big Ten and Peer Institutions, by Percent, Fall 2013.
- 2.8 U-M Undergraduate Student Enrollment from the State of Michigan by County, Fall 2014.
- 2.9 U-M Undergraduate Student Enrollment by State, Fall 2014.

U-M freshman applications have been increasing steadily since 2004, while enrollment has remained relatively constant.

2.1 Applications, Admission Offers, and Enrollment for New Freshman and Undergraduate Transfer Students, Fall 2004-14.

Over the last decade, freshman application totals for the University of Michigan have trended upward – other than for the Fall 2004 admissions period – and have been influenced by several events.

Foremost was the resolution in 2003 of two lawsuits filed in 1997 contesting the University’s admissions practices that took race and ethnicity into account when evaluating applicants. After several years of litigation in federal court, the U.S. Supreme Court ruled on the suits in June 2003, finding that although “diversity is a compelling state interest that can justify the consideration of race as a plus factor in university admissions, the automatic distribution of…points to students from underrepresented minority groups is not narrowly tailored to achieve this purpose.”

Following the Supreme Court decision, the University developed a new undergraduate application and revised its review procedures, beginning with applicants seeking admission for Fall 2004.

The new application required three separate essays from all applicants where previously students needed to submit one essay on a topic of their choosing. The number of applicants rose fairly slowly for a few years. For Fall 2011, applicants jumped, largely attributed to the adoption of the Common Application, which makes it simpler for students to include Michigan on the list of institutions they want to consider.

Fall enrollment of new freshman students remained largely at or above target range of 5,500 to 6,500, from a low enrollment of 5,399 in 2006 to an all-time high of 6,505 in 2014.

SOURCE: U-M Student Data Sets.


The trend in selectivity rates is mainly influenced by changes in application numbers.

2.2.1 Selectivity Rates for New Freshman and Undergraduate Transfer Students, Fall 2004-14.


SOURCE: U-M Student Data Sets.

Selectivity is the ratio of admission offers to total applications (and one important indicator of the quality of students who ultimately attend the institution). Yield is the ratio of enrollment numbers to admission offers.

The U-M sets annual targets for entering freshman students. The class-size target and a prediction of how many offers will be accepted influence the number of admission offers made. Tuning the admissions selectivity to produce the desired enrollment levels is something of an art, informed by data and experience.

In chart 2.2.1, a lower percentage indicates greater selectivity (fewer admission offers made relative to the total number of applications). In chart 2.2.2, a lower percentage indicates lower yield (fewer enrollments relative to the total number of admission offers). Yield is lower for out-of-state students (dotted green curve) compared to in-state students (dotted red curve) due to the relatively greater competition the University faces for out-of-state students and the significantly higher cost of tuition.
The academic preparation of freshman students entering the U-M, already high, is improving, as indicated by the grade point averages and standardized test scores of the Fall 2014 freshman class compared to their 2004 counterparts.

### 2.3.1 GPA and Standardized Test Scores of New Freshman Students, Fall 2004 and Fall 2014.

<table>
<thead>
<tr>
<th></th>
<th>Fall 2004</th>
<th>Fall 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School GPA</td>
<td>3.2 - 3.4</td>
<td>3.2 - 3.4</td>
</tr>
<tr>
<td>SAT</td>
<td>1650-1800</td>
<td>1650-1800</td>
</tr>
<tr>
<td>ACT</td>
<td>30 - 33</td>
<td>30 - 33</td>
</tr>
</tbody>
</table>

**SOURCE:** Freshman Profile Reports, U-M Office of Admissions.

The data on new U-M freshman students confirms that students enrolling in the U-M have experienced a high level of academic success in high school. Furthermore, the level of academic achievement of new freshman students has increased, as indicated by comparing percentile rankings of high school grade point averages (GPA) and standardized test scores of the Fall 2004 and 2014 freshman classes.

The University of Michigan calculates a GPA on a 4.0 scale from the official high school transcript after eliminating any weighting from the applicant’s high school. In 2004, the GPA was calculated based on academic subjects only in grades 9 to 11. In 2014, the GPA was calculated for all subjects taken in grades 9 to 11.

U-M applicants must submit a score for the SAT or the ACT (and some submit scores for both tests). SAT results reported for Fall 2004 freshmen combine the Verbal and Math scores.

For the Fall 2014 freshman students, the reported scores combine those from the Critical Reading and Math sections of the SAT.

At present, fewer students submit SAT scores and more submit ACT scores compared to 10 years ago. For Fall 2014, fewer than half of new freshman students submitted an SAT score, while 75 percent of them submitted an ACT score. Presumably, fewer U-M in-state freshman students choose to take the SAT since the State of Michigan now administers the ACT to all 11th grade students in public schools at no charge.

---

4 A grade point average was not recorded in admissions data for every newly enrolled freshman.
U-M freshman scores on the Math and Reading sections of the SAT fall near the middle of range of SAT scores for freshman students at peer universities.

2.3.2 SAT Math and Critical Reading Scores (25th to 75th Percentiles) for New Freshman Students at U-M and Peer Institutions\(^5\), Fall 2013.

The universities chosen for comparison are those that the U-M considers as academic peer institutions\(^5\). The schools have been ordered by the sum of the 75th percentile SAT Critical Reading and Math scores for the institution’s fall 2013 new freshman students (the most recent year for which data is available for U-M peer institutions). Each institution’s full-time freshman enrollment for fall 2013 is in parentheses after the school name. Although only about one-third of current U-M freshman students submit SAT scores (while 75% submit ACT scores), the SAT score is the only measure available for many of these peer institutions.

\(^5\) A list of the “official” peers used for comparison on this page is found in Appendix A.
New U-M freshman scores on the Reading section of the SAT are higher than those of freshman students at other Big Ten public institutions; scores in the Math section are second behind the University of Illinois.

2.3.3 SAT Math and Critical Reading Scores (25th to 75th Percentiles) for New Freshman Students at Public Big Ten Universities, Fall 2013.

The school list is ordered by the sum of the 75th percentile SAT Math and Critical Reading scores for the institution’s fall 2013 new full-time freshman students. Each institution’s estimated full-time freshman enrollment for fall 2013 is in parentheses after the school name.

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

Michigan (6,176)
Illinois (7,321)
Minnesota (5,538)
Wisconsin (6,323)
Ohio State (7,121)
Nebraska (4,396)
Purdue (6,388)
Iowa (4,270)
Pennsylvania State (8,005)
Indiana (7,583)
Michigan State (7,924)
Undergraduate degree-seeking transfer students enter with slightly higher grade point averages today than 10 years ago.

2.3.4 Average College GPA of New Undergraduate Transfer Students\(^6\), Fall 2004 and Fall 2014.

2.3.5 New Undergraduate Degree-Seeking Transfer Students by Class Level at Entry, Fall 2004 and Fall 2014.

SOURCE: U-M Student Data Sets.

More than 90 percent of new transfer students for Fall 2014 entered with sophomore or junior academic standing.

\(^6\) A grade point average was not recorded in admissions data for every undergraduate transfer student.
About five percent of new U-M freshman students are first-generation enrollees in college.

2.4 First-Generation Undergraduate Freshman Students at U-M and Very Selective Public and Private Research Universities for Selected Years.

![Bar Chart]

SOURCE: U-M Student Data Sets, National Postsecondary Student Aid Study (institution categories based on Carnegie classification).

A first-generation undergraduate student is someone whose parents have previously not attended college at any level. Therefore, first-generation students approach higher education without the benefit of directly informed parental guidance. This presents unique challenges to both the student and to the institution.

First-generation students frequently are at a disadvantage with respect to knowledge about college: how to apply, how to pay for it, what the college experience is like, what to expect from it, and the long-term benefits that college provides.

Prospective first-generation students who aspire to college frequently have substantial financial need; however, they lack information about available resources and are unfamiliar with the complexities of the financial aid application process. First-generation students also tend to be loan-averse and resistant to perceived financial risk for many reasons, such as family history around debt and borrowing, cultural practices that stigmatize indebtedness, lack of access to financial institutions, and impact of immigration status and language on the borrowing process.

Academic preparation can constitute another challenge, because K-12 school systems typically available to first-generation college students less frequently offer a full array of college-preparatory programs.

The University of Michigan has a relatively low proportion of first-generation undergraduate students compared to similar public and private universities.

The University of Michigan is committed to actively recruit and encourage prospective first-generation students; to inform them of available financial aid resources and provide financial aid based on demonstrated financial need; and, once enrolled, to provide appropriate academic and cultural support that will help ensure first-generation student success at U-M.

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7 The National Postsecondary Student Aid Study (NPSAS) data sets do not disclose the identities of the public and private research universities in comparison groups. The “very selective” parameter is the terminology used by NPSAS.
Total undergraduate enrollment has risen from 24,828 in 2004 to 28,395 in 2014, a 14 percent increase.

**2.5.1 Total Undergraduate and New Freshman Student Enrollment, Fall 2004-14.**

![Bar chart showing total undergraduate and new freshman student enrollment from 2004 to 2014.](image)

**SOURCE:** U-M Office of the Registrar.

Total undergraduate enrollment has increased over the last decade due to growth in most freshman classes and an increase in transfer student admissions. Data presented includes a headcount of full-time and part-time students.
Twelve U-M Schools and Colleges administer undergraduate degree programs, which enrolled 28,395 students for Fall 2014.

2.5.2 Undergraduate Student Enrollment by School and College, Fall 2014.

<table>
<thead>
<tr>
<th>School/College</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taubman College of Architecture &amp; Urban Planning</td>
<td>178</td>
</tr>
<tr>
<td>Penny W. Stamps School of Art &amp; Design</td>
<td>538</td>
</tr>
<tr>
<td>Stephen M. Ross School of Business</td>
<td>1,510</td>
</tr>
<tr>
<td>School of Dentistry</td>
<td>86</td>
</tr>
<tr>
<td>School of Education</td>
<td>156</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>6,024</td>
</tr>
<tr>
<td>School of Information</td>
<td>84</td>
</tr>
<tr>
<td>School of Kinesiology</td>
<td>925</td>
</tr>
<tr>
<td>College of Literature, Science &amp; the Arts</td>
<td>17,307</td>
</tr>
<tr>
<td>School of Music, Theatre &amp; Dance</td>
<td>788</td>
</tr>
<tr>
<td>School of Nursing</td>
<td>649</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>14</td>
</tr>
<tr>
<td>Gerald R. Ford School of Public Policy</td>
<td>126</td>
</tr>
<tr>
<td><strong>Grand Total, Undergraduate Students</strong></td>
<td><strong>28,395</strong></td>
</tr>
</tbody>
</table>

SOURCE: U-M Student Data Sets, Office of the Registrar.

The grand total includes 10 undergraduates enrolled in a joint program offered through the Stamps School of Art & Design and the School of Music, Theatre & Dance.
About three-fifths of U-M undergraduate students are from the state of Michigan.

2.6.1 Geographic Origin of Undergraduate Students by Headcount and Percent, Fall 2004-14.


A student’s geographic origin is defined according to the address used in the application for admission. The geographic origin of a student is similar, but not identical, to residency status, which is used to determine tuition to be paid.

The distribution of in-state and out-of-state students among undergraduates is partially dependent on the size of each high school graduating class in Michigan, which is on the decline. In 2008, the number of Michigan public high school graduates peaked at 109,542. By 2020, the total number of public high school graduates has been projected to drop to 94,000, about 14 percent below the 2008 peak.

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8 Cohort Graduation and Dropout Reports, Center for Educational Performance and Information, Michigan.gov.
Michigan enrolls a somewhat higher fraction of out-of-state/international new freshman students compared to many of its public university peers.10

### 2.6.2 Geographic Origin of New Freshman Students, U-M and Public Big Ten and Peer Institutions11, by Percent, Fall 2013.

<table>
<thead>
<tr>
<th>Institution</th>
<th>In-state %</th>
<th>Out-of-state %</th>
<th>International %</th>
</tr>
</thead>
<tbody>
<tr>
<td>U Iowa</td>
<td>48%</td>
<td>41%</td>
<td>11%</td>
</tr>
<tr>
<td>Purdue U</td>
<td>56%</td>
<td>30%</td>
<td>15%</td>
</tr>
<tr>
<td>Indiana U</td>
<td>58%</td>
<td>35%</td>
<td>8%</td>
</tr>
<tr>
<td>U MICHIGAN</td>
<td>59%</td>
<td>36%</td>
<td>4%</td>
</tr>
<tr>
<td>U Wisconsin</td>
<td>61%</td>
<td>34%</td>
<td>6%</td>
</tr>
<tr>
<td>U Virginia</td>
<td>65%</td>
<td>30%</td>
<td>5%</td>
</tr>
<tr>
<td>U Minnesota</td>
<td>65%</td>
<td>30%</td>
<td>5%</td>
</tr>
<tr>
<td>Michigan State U</td>
<td>72%</td>
<td>12%</td>
<td>17%</td>
</tr>
<tr>
<td>U Illinois</td>
<td>73%</td>
<td>11%</td>
<td>16%</td>
</tr>
<tr>
<td>U Nebraska</td>
<td>74%</td>
<td>24%</td>
<td>4%</td>
</tr>
<tr>
<td>U North Carolina</td>
<td>83%</td>
<td>16%</td>
<td>1%</td>
</tr>
</tbody>
</table>

**SOURCE:** Integrated Postsecondary Education Data System (IPEDS).

IPEDS collects geographic origin data only for new freshman students.

---

10 IPEDS only requires new freshmen enrollment reports by geographic origin every other year, so Fall 2013 counts are not available for UC-Berkeley, UCLA, Ohio State, Penn State and University of Washington.

11 A list of the “official” public peers used for comparison on this page is found in Appendix A.
The majority of in-state undergraduate students are from Southeastern Michigan.

2.6.3 U-M Undergraduate Student Enrollment from the State of Michigan by County, Fall 2014.

After Michigan, the states of New York, Illinois and California are home to the largest number of U-M undergraduate students.

2.6.4 U-M Undergraduate Student Enrollment by State, Fall 2014.

Chapter 3  Undergraduate Students: Affordability

Goals
A central priority for the University of Michigan is ensuring that admitted students are able to attend regardless of financial need. The institution has a longstanding commitment to provide a package of financial aid that meets the full demonstrated need of in-state students to pay for tuition, room and board, textbooks and incidentals. The University also provides financial aid to out-of-state students, although not at the same level of support. Overall, the University strives to have a diverse socioeconomic mix of students on campus, and to ensure that no student graduates with an unmanageable level of debt.

Overview
The University has worked very hard in recent years to slow the increase in tuition. It has been able to reduce the net cost of attendance for undergraduate students with financial need (despite the recent dramatic decline in state support) by making sizeable and growing investments in financial aid, which has been funded through a combination of aggressive cost containment and generous philanthropic contributions. In seven of the last eight years, the central financial aid budget has grown by more than 10 percent, and for FY2014 it constitutes 9.3 percent of the General Fund budget.

Furthermore, during the recent Michigan Difference Capital Campaign, the University established endowments of $72.6 million for undergraduate students and $60 million for graduate and professional students that combined private gifts with a U-M 1-for-2 match.

In 2009-10, the State of Michigan reduced or eliminated several student aid programs that affected more than 6,400 undergraduate students. The lost aid for U-M students was part of a two-thirds reduction in the State funding for all higher education scholarships and grants.

In 2013-14, 61 percent of undergraduates received some type of financial aid; 69 percent of in-state and 50 percent of out-of-state students received some type of aid. The average student loan debt for in-state students who graduated in 2012-13 was $25,575.

There are two broad student loan categories: need-based, “packaged” loans and “supplemental” loans. Students who apply for financial aid at U-M are automatically considered for several low-interest federal loans. These loans are awarded to eligible students as part of the student's financial aid package and are included on the student's financial aid award notice. Supplemental loans represent borrowing to replace a portion of the Expected Family Contribution or Work Study offered as part of a student’s financial aid package. Supplemental loans can be acquired through the federal government or a private lender.

For More Information
Office of Financial Aid
www.finaid.umich.edu
U-M Affordability Guide for In-State Students
www.admissions.umich.edu/affordability
Cost Cutting and Budget Update
www.vpcomm.umich.edu/pa/key/budget/

Charts in Chapter 3

3.1  Undergraduate Tuition and Required Fees, per Semester, 2015-16.
3.3.1  Net Cost of Attendance for New U-M Freshmen by Family Income Level, FY2005-15.
3.4  Total U-M Expenditures for Undergraduate Student Grant and Scholarship Aid, by In-State/Out-of-State Status, FY2004-14.
3.5.1  Average Per Student Need-based Grant Aid by Source for New Freshmen at U-M, FY03 and FY13.
3.5.2  Average Per Student Need-based Grant Aid by Source for New Freshmen, U-M and AAU Public Universities, 2012-13.
3.6.1  Family Income Distribution for New Freshmen and All Undergraduates, by In-State and Out-of-State Status, Fall 2003 & Fall 2013.
3.6.3  Number and Percent of Undergraduate Students Receiving Aid, by Type, 2013-14.
3.6.4  Total Financial Aid Awarded and Average Total Award per Student Receiving Aid, 2013-14.
3.8  Average Student Loan Debt Burden at Graduation for All, In-State and Out-of-State Undergraduate Students, 2013-14.
Tuition and fees for new in-state freshmen start at $6,928 per semester in the College of Literature, Science & the Arts, Penny W. Stamps School of Art & Design, and the School of Nursing. New in-state freshmen entering the College of Engineering pay the highest per-semester rate of $7,409.

3.1  Undergraduate Tuition and Required Fees, per Semester, 2015-16.

<table>
<thead>
<tr>
<th>School/College</th>
<th>Program</th>
<th>Per semester</th>
<th>In-State</th>
<th>Out-of-State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taubman College of Architecture &amp; Urban Planning</td>
<td>Lower Division</td>
<td>$6,928</td>
<td>$21,738</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>Penny W. Stamps School of Art &amp; Design</td>
<td>Lower Division</td>
<td>$6,928</td>
<td>$21,738</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>Stephen M. Ross School of Business</td>
<td>Lower Division</td>
<td>$7,344</td>
<td>$22,106</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$9,264</td>
<td>$24,737</td>
<td></td>
</tr>
<tr>
<td>School of Dentistry (Dental Hygiene)</td>
<td>Lower Division</td>
<td>$7,056</td>
<td>$21,865</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$7,935</td>
<td>$23,397</td>
<td></td>
</tr>
<tr>
<td>School of Education</td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>College of Engineering</td>
<td>Lower Division</td>
<td>$7,409</td>
<td>$21,865</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$9,554</td>
<td>$24,537</td>
<td></td>
</tr>
<tr>
<td>School of Information</td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>School of Kinesiology</td>
<td>Lower Division</td>
<td>$7,307</td>
<td>$23,109</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$8,378</td>
<td>$25,238</td>
<td></td>
</tr>
<tr>
<td>College of Literature, Science &amp; the Arts</td>
<td>Lower Division</td>
<td>$6,928</td>
<td>$21,738</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>Medical School*</td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>School of Music, Theatre &amp; Dance</td>
<td>Lower Division</td>
<td>$7,202</td>
<td>$22,027</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$8,075</td>
<td>$23,551</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Division</td>
<td>$6,928</td>
<td>$21,738</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>School of Nursing</td>
<td>Accelerated Second Career</td>
<td>$8,729</td>
<td>$25,995</td>
<td></td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>B.S. – Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
<tr>
<td>Gerald R. Ford School of Public Policy</td>
<td>Upper Division</td>
<td>$7,801</td>
<td>$23,264</td>
<td></td>
</tr>
</tbody>
</table>


Tuition increased by 2.7 percent over 2014-15 for Lower Division In-State undergraduate students. In-State Upper division and Out-of-State undergraduates saw increases of 3.7 percent over last year.

* MedPrep is a new post-baccalaureate premedical program starting May 2015.
Over the last decade, the “sticker price” for U-M students, whether in- or out-of-state, has grown more slowly than the comparable averages for like students at AAU universities.

### 3.2.1 Total Cost of Attendance Before Financial Aid, In-State Students

U-M and AAU Public Universities, Adjusted for Inflation¹, FY2004-14.

![Chart showing the cost of attendance for U-M and AAU public universities.]

### 3.2.2 Total Cost of Attendance Before Financial Aid, Out-of-State Students


![Chart showing the cost of attendance for U-M and AAU public and private universities.]

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

The total cost of attendance (not considering financial aid contributions) for incoming freshmen is a benchmark figure that includes Regentally-approved tuition and required fees and room and board plus reasonable estimates for the costs of books and supplies, transportation, and miscellaneous expenses. The net cost of attendance will vary depending on the financial aid as well as the differences in transportation requirements and housing choices.

¹ Based on 2014 U.S. Consumer Price Index.

Of note: the total cost of attendance for the U-M and the public AAU institutions decreased from FY2013 to FY2014 when adjusted for inflation.
Typical students with family incomes up to $80,000 pay less today to attend U-M than they did in 2003-04. The loan component in the financial aid package for such students is less now, as well.

### 3.3.1 Net Cost of Attendance\(^2\) for New U-M Freshmen by Family Income Level, Before Merit Aid, FY2004-14.

The dotted line labeled “Sticker Price” is the cost of attendance before taking into account any grants, loans or scholarships that may be available to reduce the out-of-pocket costs.


Students from families in the lowest income bracket are not required to pay anything out-of-pocket to attend the University of Michigan. The $2,500 in net cost for the under $20,000 group represents the amount of Work Study earnings made available to these students. Work Study opportunities are offered to all students whose family income is $100,000 or less.

Merit-based scholarship aid is not reflected in the aid data presented here. Merit grants reduce the need to take loans or participate in Work Study as part of a student’s Expected Family Contribution. About 40 percent of students who received need-based grants also receive merit-based scholarship aid. The average merit-based grant was $6,150 in 2011-12 for students who received both need-based and merit-based financial assistance.\(^1\)

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\(^2\) The net cost of attendance calculation considers Work Study to be a cost to the student, although it can be covered through a Work Study job. The net cost of attendance does not take into account any reduction in loan amounts that were made possible through the award of merit-based scholarships.

\(^1\) Financial Aid Report to U-M Board of Regents from Philip J. Hanlon, Provost, February 2013.
From FY2011 to FY2013, the average net cost of attendance (or net price) for first-time, full-time freshmen who received grants or scholarships aid increased more at the U-M compared to most of its peer universities.


SOURCE: Integrated Postsecondary Education Data System (IPEDS).

In FY2013, the average net cost of attendance (full cost minus financial aid) for U-M first-time, full-time in-state undergraduate students who received grant or scholarship aid was $15,939, compared to $14,074 for FY2011. Since the calculation is based only on students receiving aid, a school’s net price rises when it spreads its aid budget over a larger number of students.

4 A list of “official” peers used for comparison on this page is found in Appendix A.
In the 2013-14 academic year, the U-M provided $114 million in grants and scholarships from all sources to undergraduate students.

3.4 Total U-M Expenditures for Undergraduate Student Grant and Scholarship Aid, by In-State/Out-of-State Status with Annual Percentage Increases, FY2004-14.

This chart shows the amount of financial aid disbursed to undergraduates as both need-based grants and merit-based scholarships. The percentage above each column is the amount of increase in expenditures for grant and scholarship aid compared to the previous year.

The University has dedicated significant resources to providing financial aid to undergraduate students. Over the past five years, the General Fund budget for undergraduate financial aid of all types has grown at a 10.6 percent annual growth rate, compared to a 3.6 percent annual growth rate in tuition.

Fundraising provides an important component of the institution’s financial aid resources. In the recent Michigan Difference fundraising campaign, donors committed support for more than 2,000 endowed scholarships valued at $281 million. About 20 percent of the U-M endowment is now dedicated to financial aid.
Since FY2003, U-M has increased the inflation-adjusted, average need-based institutional grant to new undergraduate students by $4,774. At the same time, when adjusted for inflation, the average grant from the federal government increased by $318 and the average state grant decreased by $2,608.

### 3.5.1 Average Per Student Need-based Grant Aid, Adjusted for Inflation, by Source for New Freshmen at U-M, FY2003 and FY2013.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Institutional</th>
<th>State</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>$7,459</td>
<td>$3,336</td>
<td>$4,558</td>
</tr>
<tr>
<td>2013</td>
<td>$12,233</td>
<td>$728</td>
<td>$4,876</td>
</tr>
</tbody>
</table>

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

The University of Michigan is committed to providing financial aid to meet the full demonstrated need of in-state students. To fulfill this commitment, the U-M has increased its contribution to the total need-based grant aid received by its undergraduate students every year since 2003. On average, the inflation-adjusted, need-based grant aid from the U-M to a new freshman with need was 64 percent higher in FY2013 than in FY2003. Conversely, the average need-based grant from the State of Michigan is 358 percent smaller now compared to a decade ago, when adjusted for inflation.
Michigan provides the second-highest amount of institutional aid of all AAU public institutions. However, the average State grant to U-M students is second-lowest of all AAU public universities.

3.5.2 Average Per Student Need-based Grant Aid by Source for New Freshmen, U-M and AAU Public Universities, 2012-13.

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

Only one AAU public university provides more grant aid to undergraduate students from institutional resources – University of Virginia, at an average of $15,362 per student.

The average grant to U-M students from the State of Michigan is smaller than similar average grants provided by any other state that supports an AAU public university. The average federal grant to U-M students is $250 higher than the average for all AAU public institutions.
The fraction of in-state undergraduate students from families with an annual income of $50,000 or less is greater today than a decade ago.

3.6.1 Family Income Distribution for New Freshmen and All Undergraduates, Adjusted for Inflation\(^5\), by In-State and Out-of-State Status, Fall 2003 & Fall 2013.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than $150,000 or did not apply for aid</td>
<td>54%</td>
<td>49%</td>
<td>58%</td>
<td>51%</td>
</tr>
<tr>
<td>$100,001 - $150,000</td>
<td>68%</td>
<td>76%</td>
<td>71%</td>
<td>78%</td>
</tr>
<tr>
<td>$50,001 - $100,000</td>
<td>9%</td>
<td>7%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>$25,001 - $50,000</td>
<td>12%</td>
<td>9%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>$25,000 or Less</td>
<td>18%</td>
<td>18%</td>
<td>16%</td>
<td>10%</td>
</tr>
<tr>
<td>New Freshmen</td>
<td>19%</td>
<td>19%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>All Undergraduates</td>
<td>14%</td>
<td>15%</td>
<td>10%</td>
<td>7%</td>
</tr>
</tbody>
</table>

SOURCE: U.S. Department of Education.

Family income is based on data reported by families on the Free Application for Federal Student Aid (FAFSA), the online form that college students must complete to be considered for financial aid.

\(^5\) Based on 2014 Consumer Price Index.
The U-M enrolls a low percentage of students eligible for Pell Grants compared to most other AAU public universities, similar to the levels at many private universities.

### 3.6.2 Pell Grant Recipients as Percent of Undergraduate Student Body, U-M and AAU Institutions, 2012-13.

<table>
<thead>
<tr>
<th>Percent of undergrads with Pell grants</th>
<th>Percent of undergrads with Pell grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAU Publics (average, excluding U-M)</td>
<td>25%</td>
</tr>
<tr>
<td>AAU Privates (average)</td>
<td>16%</td>
</tr>
<tr>
<td>University of California-Davis</td>
<td>43%</td>
</tr>
<tr>
<td>University of California-Irvine</td>
<td>43%</td>
</tr>
<tr>
<td>University of California-San Diego</td>
<td>43%</td>
</tr>
<tr>
<td>University of California-Santa Barbara</td>
<td>38%</td>
</tr>
<tr>
<td>University of California-Los Angeles</td>
<td>36%</td>
</tr>
<tr>
<td>Stony Brook</td>
<td>35%</td>
</tr>
<tr>
<td>University of Arizona</td>
<td>33%</td>
</tr>
<tr>
<td>University of California-Berkeley</td>
<td>32%</td>
</tr>
<tr>
<td>University of Florida</td>
<td>32%</td>
</tr>
<tr>
<td>Rutgers University</td>
<td>31%</td>
</tr>
<tr>
<td>University at Buffalo</td>
<td>28%</td>
</tr>
<tr>
<td>University of Texas at Austin</td>
<td>27%</td>
</tr>
<tr>
<td>University of Oregon</td>
<td>26%</td>
</tr>
<tr>
<td>University of Washington</td>
<td>25%</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>24%</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>23%</td>
</tr>
<tr>
<td>University of Southern California</td>
<td>23%</td>
</tr>
<tr>
<td>Columbia University</td>
<td>22%</td>
</tr>
<tr>
<td>Emory University</td>
<td>22%</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>22%</td>
</tr>
<tr>
<td>Texas A &amp; M University</td>
<td>22%</td>
</tr>
<tr>
<td>University of Kansas</td>
<td>22%</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>22%</td>
</tr>
<tr>
<td>University of Missouri</td>
<td>22%</td>
</tr>
<tr>
<td>Purdue University</td>
<td>22%</td>
</tr>
<tr>
<td>University of North Carolina</td>
<td>21%</td>
</tr>
<tr>
<td>Case Western Reserve University</td>
<td>20%</td>
</tr>
<tr>
<td>New York University</td>
<td>20%</td>
</tr>
<tr>
<td>University of Illinois</td>
<td>20%</td>
</tr>
<tr>
<td>Georgia Institute of Technology</td>
<td>19%</td>
</tr>
<tr>
<td>Indiana University</td>
<td>19%</td>
</tr>
<tr>
<td>University of Iowa</td>
<td>19%</td>
</tr>
<tr>
<td>University of Maryland</td>
<td>19%</td>
</tr>
<tr>
<td>Brandeis University</td>
<td>18%</td>
</tr>
<tr>
<td>Massachusetts Institute of Technology</td>
<td>18%</td>
</tr>
<tr>
<td>Pennsylvania State University</td>
<td>18%</td>
</tr>
<tr>
<td>University of Rochester</td>
<td>18%</td>
</tr>
<tr>
<td>Rice University</td>
<td>17%</td>
</tr>
<tr>
<td>University of Colorado</td>
<td>17%</td>
</tr>
<tr>
<td>University of Pittsburgh</td>
<td>17%</td>
</tr>
<tr>
<td>Cornell University</td>
<td>16%</td>
</tr>
<tr>
<td>Stanford University</td>
<td>16%</td>
</tr>
<tr>
<td>Tulane University of Louisiana</td>
<td>16%</td>
</tr>
<tr>
<td>UNIVERSITY OF MICHIGAN</td>
<td><strong>16%</strong></td>
</tr>
<tr>
<td>Boston University</td>
<td>15%</td>
</tr>
<tr>
<td>University of Wisconsin</td>
<td>15%</td>
</tr>
<tr>
<td>Brown University</td>
<td>14%</td>
</tr>
<tr>
<td>Carnegie Mellon University</td>
<td>14%</td>
</tr>
<tr>
<td>Duke University</td>
<td>14%</td>
</tr>
<tr>
<td>Northwestern University</td>
<td>14%</td>
</tr>
<tr>
<td>University of Chicago</td>
<td>14%</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>14%</td>
</tr>
<tr>
<td>Vanderbilt University</td>
<td>14%</td>
</tr>
<tr>
<td>Johns Hopkins University</td>
<td>13%</td>
</tr>
<tr>
<td>Yale University</td>
<td>13%</td>
</tr>
<tr>
<td>Princeton University</td>
<td>12%</td>
</tr>
<tr>
<td>University of Virginia</td>
<td>12%</td>
</tr>
<tr>
<td>California Institute of Technology</td>
<td>11%</td>
</tr>
<tr>
<td>Harvard University</td>
<td>10%</td>
</tr>
<tr>
<td>Washington University</td>
<td>6%</td>
</tr>
</tbody>
</table>

**SOURCE:** Integrated Postsecondary Education Data System (IPEDS).

The Federal Pell Grant Program provides need-based grants to low-income undergraduate students to promote access to a college education. Pell Grants, unlike loans, do not need to be repaid. The maximum Pell Grant for the 2012-13 academic year was $5,550, which is adjusted for each recipient according to financial need, cost to attend school, and status as a full-time/part-time and full-year/part-year student.

Blue-shading indicates public institutions.
Nearly 70 percent of in-state undergraduate students receive some kind of financial aid, and more than one-third of in-state undergraduates receive need-based grant aid.

### 3.6.3 Number and Percent of Undergraduate Students Receiving Aid, by Type, 2013-14.

<table>
<thead>
<tr>
<th></th>
<th>In-State</th>
<th>Out-of-State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(17,595 students)</td>
<td>(9,812 students)</td>
</tr>
<tr>
<td>Need-based Grant Aid</td>
<td>6,667 (39%)</td>
<td>2,286 (20%)</td>
</tr>
<tr>
<td>Merit-based Scholarship Aid</td>
<td>7,831 (46%)</td>
<td>3,942 (35%)</td>
</tr>
<tr>
<td>Work Study</td>
<td>2,158 (13%)</td>
<td>706 (6%)</td>
</tr>
<tr>
<td>Loans</td>
<td>7,261 (43%)</td>
<td>2,913 (26%)</td>
</tr>
<tr>
<td>Any Type of Aid</td>
<td>11,666 (69%)</td>
<td>5,698 (50%)</td>
</tr>
</tbody>
</table>

### 3.6.4 Total Financial Aid Awarded and Average Total Award per Student Receiving Aid, 2013-14.

<table>
<thead>
<tr>
<th></th>
<th>In-State</th>
<th>Out-of-State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Aid Awarded from all Sources</td>
<td>$178,008,126</td>
<td>$147,460,948</td>
</tr>
<tr>
<td>Average Total Award per Student Receiving Any Type of Aid</td>
<td>$15,259</td>
<td>$25,879</td>
</tr>
</tbody>
</table>


In reviewing these charts, please note: a) many students receive multiple types of aid, b) many merit-based scholarships also have a need-based component in their criteria, c) the loan data includes all student loans, whether included in a student’s financial aid package or as a supplemental loan.
Just over half of U-M undergraduate students work for pay while in school; of those who do, most work 10 hours a week or less during the academic year.

3.7 Weekly Hours of Paid Work by U-M Undergraduate Students\(^5\), 2009-11, 2013.

![Weekly Hours of Paid Work by U-M Undergraduate Students](image)

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

According to student reports, the time devoted to work for pay has remained nearly level over the last several years. While some U-M students help finance their education through work for pay during the academic year, it’s important that this not impede students’ progress toward completion of their degree programs.

The percentage of U-M undergraduates working for pay is in line with national data for fall 2010 from the U.S. Census Bureau\(^6\). Six percent of U-M undergraduates work for pay more than 20 hours per week while in school, compared to 24.5 percent of full-time undergraduates at public universities work 20 or more hours per week.

Data for 2011-12 is not available because the UMAY survey was not conducted at the U-M that year.

---

\(^5\) Percentage distributions exclude students who did not respond.

More than half of in-state undergraduate students in the 2014 graduating class completed their degrees owing student loan debt.

### 3.8 Average Student Loan Debt Burden at Graduation for All, In-State and Out-of-State Undergraduate Students, 2013-14.

<table>
<thead>
<tr>
<th></th>
<th>All Undergraduate Students (6,969)</th>
<th>In-State (4,254)</th>
<th>Out-of-State (2,715)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Loan Burden</td>
<td>$26,510</td>
<td>$25,389</td>
<td>$29,564</td>
</tr>
<tr>
<td>Number of Graduates with Loans</td>
<td>3,127</td>
<td>2,287</td>
<td>840</td>
</tr>
<tr>
<td>Percent of Graduates with Loans</td>
<td>45% of all undergraduates</td>
<td>54% of in-state graduates</td>
<td>31% of out-of-state graduates</td>
</tr>
</tbody>
</table>


Forty-five percent of the 2013-14 undergraduate class graduated with debt. The average loan burden for in-state student graduates was $25,510 and for out-of-state students was $29,564. Compared to the previous year’s graduating class, the average debt burden at graduation declined by $186 for in-state students and by $2,331 for out-of-state students. The percentage of in-state students who graduated with debt decreased by 2 percent from the previous graduating class, and the percentage of out-of-state students to graduate with debt decreased by 1 percent. These percentage declines are due in part because the size of the graduating class for 2013-14 grew by 477 compared to the previous year.

In interpreting loan burden figures, it is important to distinguish between “packaged” loans and “supplemental” loans. Students who apply for financial aid at U-M are automatically considered for low-interest federal loans, which are awarded as part of financial aid packages. Supplemental loans, which are offered both by the federal government and private lenders, are available to all students, regardless of whether they are eligible for financial aid.
Chapter 4  Undergraduate Student Success

Goals
The University of Michigan prepares its students to become leaders in the 21st century. The U-M’s academic and extracurricular programs have been developed and implemented to make sure each student completes a meaningful degree program in a reasonable time frame so as to advance his or her career and personal goals.

Overview
The University takes a number of steps to facilitate students’ timely progression to degree completion. This includes providing sufficient course offerings, excellent advising and mentoring, as well as ensuring that in-state students who demonstrate financial need receive sufficient financial aid. Out-of-state students also benefit from these resources, including access to financial assistance.

Each U-M undergraduate school or college has developed initiatives to help students who face impediments to their success that jeopardize their retention and degree completion. The academic units monitor student performance in key courses and require additional academic advising for students in poor academic standing. In addition, all students may take advantage of academic support services and programs, such as departmental tutoring, study skills workshops, mentoring, and programs offered by the Sweetland Writing Center and the Science Learning Center.

In this chapter, we present data on graduation rates for freshmen and transfer cohorts, data on U-M undergraduates who subsequently enroll in a graduate program, and indicators of senior student satisfaction with the University.

More than two-thirds of Michigan undergraduate students complete their first degree within four years of enrolling as freshmen. After six years, that figure is about 90 percent. University of Michigan students’ completion rates are now about 12 percentage points higher than the average of public Association of American Universities (AAU) member institutions. The average graduation rates four years after enrollment at private AAU member schools is 5 to 8 percentage points higher than for U-M undergraduates, but by six years after enrollment, U-M graduation rates are nearly equal to the AAU privates.

Undergraduates who transfer to the U-M complete their degree programs at high rates as well. Between 85 and 90 percent of transfer students graduate within four to six years after enrollment.

U-M undergraduates are surveyed during their senior year and report very positive opinions of the University as a whole and of their individual academic programs. Ninety percent of seniors surveyed say that if they had it to do over, they would attend the University of Michigan again.

Lastly, about half of all undergraduates continue their academic careers by enrolling in graduate or professional school within four years of completing a degree at the U-M.

In addition to graduate school or employment, University of Michigan students are increasingly interested in becoming entrepreneurs, with a growing number of students launching business ventures before graduation.

For more information
Additional data on undergraduate demographics can be found in Chapter 2 on admissions and enrollment and in Chapter 7 on diversity. Information about undergraduate costs and financial aid is in Chapter 3.

Most Popular Undergraduate Degrees, 2012-13

- Psychology (8% of graduating class)
- Economics (7%)
- Business Administration (6%)
- Political Science (6%)
- English (4%)

Charts in Chapter 4

4.2 Proportion of U-M Baccalaureate Recipients Enrolled in a Graduate, Professional, or Other Program at a Four-Year College within Four Years of Graduation, Class of 2007-08.
4.3.1 Responses of U-M Seniors to Survey Questions about Satisfaction with their Educations.
4.3.2 Responses of U-M Seniors to Survey Questions about Satisfaction with Academics, Course Availability and Advising.

---

1 Degrees Granted (level and demographics), Ann Arbor campus, Office of Budget and Planning
U-M graduation rates are far higher than the average rates for AAU public universities and comparable to the average 6-year rates for AAU private universities.


![Graph showing graduation rates for U-M, AAU Public, and AAU Private Universities]

SOURCE: Integrated Postsecondary Education Data System (IPEDS); U-M Office of the Registrar Degree Reports.

This chart shows the fractions of new freshmen cohorts that have graduated with a bachelor’s degree in four, five and six years. The bottom axis represents the year each freshmen cohort started college. Comparative data from Association of American Universities (AAU) institutions¹ is displayed for 1999 through 2006 cohorts (which includes the most recent data available from IPEDS); additional U-M data is displayed for 2007 to 2009.

¹ A list of public and private Association of American Universities (AAU) member institutions is found in Appendix A.
About half of U-M students who received a bachelor’s degree also enrolled in a graduate or professional school within four years of graduation.

4.2 Proportion of U-M Baccalaureate Recipients Enrolled in a Graduate, Professional, or Other Program at a Four-Year College within Four Years of Graduation, Class of 2007-08.

Source: National Student Clearinghouse.

Many U-M students who graduate with baccalaureate degrees continue their educations in graduate or professional school programs, or in other post-bachelor’s degree education, including more than half of the graduates of the College of Literature, Science & the Arts. The percentage above each column is the sum of the percentages of U-M bachelor’s graduates who enrolled at the U-M and other schools. The “N” below each column is the total number of students who graduated from the U-M and each undergraduate school or college during 2007-08.
Seniors have expressed a high level of satisfaction with their U-M education on several measures.

4.3.1 Responses of U-M Seniors to Survey Questions about Satisfaction with their Education.

**A: If you could start over again, would you go to the same institution?**

- **2009:** 90%
- **2006:** 88%
- **2003:** 89%

**B: How would you evaluate your entire educational experience at the U-M?**

- **2009:** 92%
- **2006:** 90%
- **2003:** 90%

**C: How would you rate the academic quality of the U-M in general?**

- **2009:** 95%
- **2006:** 94%
- **2003:** 93%

**D: How would you rate the academic quality of your major program?**

- **2009:** 88%
- **2006:** 88%
- **2003:** 85%

SOURCE: National Survey of Student Engagement.

The National Survey of Student Engagement is one of several higher education surveys administered by the Center for Postsecondary Research in the Indiana University School of Education. Although the survey is administered annually, the U-M only participates in selected years.
Seniors have expressed a high level of satisfaction with their U-M academic experience over several measures.

4.3.2 Responses of U-M Seniors to Survey Questions about Satisfaction with Academics, Course Availability, and Advising, 2009-11, 2013.

* Very satisfied * Satisfied * Somewhat satisfied * Somewhat dissatisfied * Dissatisfied * Very dissatisfied

A: How satisfied are you with your overall academic experience?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td>90%</td>
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<td></td>
<td></td>
<td></td>
<td>93%</td>
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<td></td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91%</td>
</tr>
</tbody>
</table>

B: How satisfied are you with your ability to get into a major that you want?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td>96%</td>
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<td></td>
<td>97%</td>
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<td>96%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>96%</td>
</tr>
</tbody>
</table>

C: How satisfied are you with availability of courses needed for graduation?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>87%</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>88%</td>
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<td>85%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>84%</td>
</tr>
</tbody>
</table>

D: How satisfied are you with availability of courses for general education requirements?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td>84%</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>86%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>82%</td>
</tr>
</tbody>
</table>

E: How satisfied are you with advising by school or college staff on academic matters?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80%</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>79%</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>73%</td>
</tr>
</tbody>
</table>

F: How satisfied are you with advising by faculty on academic matters?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>84%</td>
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<td>84%</td>
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<td></td>
<td></td>
<td></td>
<td>79%</td>
</tr>
</tbody>
</table>

G: How satisfied are you with advising by departmental staff on academic matters?

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
<th>2009</th>
<th>Percent responded</th>
</tr>
</thead>
<tbody>
<tr>
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<td>84%</td>
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<td></td>
<td>83%</td>
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<td>80%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>79%</td>
</tr>
</tbody>
</table>

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

UMAY (University of Michigan Asks You) is a survey administered to all undergraduates at the University of Michigan-Ann Arbor. The survey is used to learn about undergraduate student experiences, from satisfaction with the academic and extra-curricular activities, to the students’ assessment of the campus climate. UMAY is the U-M designation for the Student Experience in the Research University (SERU) survey, managed by a set of AAU institutions and located at the Center for Studies in Higher Education, University of California–Berkeley. The UMAY survey was not conducted on the U-M campus in 2012.
Chapter 5  Graduate Academic & Professional Degree Students

Goals
The University of Michigan offers a remarkably broad and rigorous array of graduate and professional degree programs that are among the very best in the country in each field of study. The University attracts outstanding students to graduate study, and prepares them to make lasting contributions to society through successful careers in professions and academic disciplines. Interdisciplinary study and joint degrees are a special strength of the University. The vibrant community of graduate and professional students on campus is highly diverse in citizenship, demographic background, and intellectual perspective.

Overview
The Horace H. Rackham School of Graduate Studies oversees graduate academic education in partnership with the schools and colleges. In fall 2014, the University enrolled 8,238 students in 109 Ph.D., 92 master’s, and 35 graduate-level certificate programs offered by the schools and colleges. In addition to obtaining an education, graduate students contribute significantly to the conduct of research, scholarship and teaching on campus. The research enterprise at the U-M benefits enormously from the talent and intelligence of these students.

Another 6,992 students enrolled in professional degree programs in medicine, law, business, public health, dentistry, pharmacy, nursing, information, engineering, social work and architecture and urban planning in fall 2014. The schools or colleges administer these degree programs in keeping with each profession’s requirements and standards.

Compared to its peers, the University of Michigan awards a high number of graduate and professional degrees. Among its peers, only the combined total of Columbia University’s advanced degrees is higher than Michigan’s.

The tuition paid by graduate and professional students varies considerably depending on the program. Almost all Ph.D. students – and about half of academic Master’s students – receive financial support.

Professional degree programs are generally more costly than graduate academic tuition. A large fraction of the students in professional degree programs complete graduate school with loans to repay. Eighty percent of students who recently completed U-M programs in medicine, law and dentistry owe $100,000 or more in student loans.

The Rackham Graduate School collects data on the number of entering graduate students who complete Ph.D. programs. Overall, about 69 percent of the students who enrolled in a program between 2000 and 2007 have received a Ph.D. The rates vary somewhat by discipline.

By the time U-M Ph.D. students complete their degrees, a significant fraction will have published scholarly articles in journals or have articles accepted for publication. Since 2007, more than 80 percent of graduates from programs in the biological, health and physical sciences and engineering will have a publication record to include on their CVs. In that same time period, two-thirds of Michigan graduates in the social sciences and one-third of those in the humanities and arts are or soon will be published.

Post-graduation plans vary along disciplinary lines. Ph.D. graduates in the humanities and the arts often find academic positions immediately after graduating. Graduates in the biological, physical and social sciences frequently take a postdoctoral training position before moving into other employment. Industry positions attract a large number of graduates from engineering and the physical sciences. U-M’s international students tend to remain in the U.S. after graduation, probably reflecting the kind and number of opportunities available in this country for those holding advanced degrees.

In several professions, prospective practitioners must pass one or more examinations before becoming a full member of his or her chosen career; U-M students in medicine, law and dentistry have high pass rates.

For more information
Horace H. Rackham School of Graduate Studies
rackham.umich.edu/

U-M Graduate Program Information
rackham.umich.edu/academics/programs_of_study/

Data about the gender and racial/ethnic diversity of graduate students are reported in Chapter 8.
Charts in Chapter 5

5.1.1 Graduate Academic and Professional Student Enrollment by Percent of Total Enrollment for U-M and AAU Public and Private Universities, Fall 2004-14.

5.1.2 U-M Graduate Academic and Professional Student Enrollment as Percent of Total Enrollment, with Headcount, Selected Years from 1960-2014.

5.1.3 U-M Graduate Academic and Professional Student Enrollment by School/College and Degree Sought, Fall 2014.

5.2.1 Graduate Academic and Professional Degree Tuition and Required Fees, per Semester, 2014-15.

5.2.2 Graduate Academic Student Tuition and Required Fees, Adjusted for Inflation, per Semester, FY1995 to FY2015.

5.2.3 Graduate Professional Student Tuition and Required Fees, Adjusted for Inflation, In-State per Semester, FY1995 to FY2015.

5.2.4 Graduate Professional Student Tuition and Required Fees, Adjusted for Inflation, Out-of-State per Semester, FY1995 to FY2015.


5.4.1 Academic Doctoral Completion Rates by Discipline Group, Enrollment Cohorts from 2000-07.

5.4.2 Academic Master’s Completion Rates by Discipline Group, Enrollment Cohorts from 2006-11.

5.5.1 Funding Support for Rackham Ph.D. Students, 2012-13.

5.5.2 Funding Support for Rackham Master’s Students, 2012-13.

5.6.1 Academic Doctoral Students’ Self-reported Cumulative Undergraduate and Graduate Debt at Graduation, by Discipline Group for Domestic Students, 2002-3 to 2011-12.

5.6.2 Graduate Professional Students’ Self-reported Cumulative Undergraduate and Graduate Debt at Graduation, by Program, 2003-12.


5.8.1 Geographic Origins of U-M Graduate Academic Degree Recipients, Headcount and Percent by Discipline Group, 2001-2 to 2011-12.

5.8.2 Geographic Destinations of U-M Graduate Academic Degree Recipients, Headcount and Percent by Discipline Group, 2001-2 to 2011-12.


Graduate and professional students comprise about one-third of the total student enrollment.

5.1.1 Graduate Academic and Professional\textsuperscript{1} Student Enrollment by Percent of Total Enrollment for U-M and AAU Public and Private Universities\textsuperscript{2}, Fall 2004-14.

Total University of Michigan student enrollment has increased to 43,625 for fall 2014 from 38,319 in fall 2004, while the total graduate enrollment – academic and professional – increased to 15,230 from 13,556.

U-M professional student enrollment during the last decade was highest in 2004 as a fraction of the total student enrollment. The academic doctoral fraction rose to its highest level in 2010 (the first year of Rackham’s “continuous enrollment policy,” see p. 52), while the academic masters student fraction reached a maximum in 2014. Combined graduate and professional student enrollment as a fraction of the total student body is 0.3 percent smaller in 2014 compared to 2004.

The average percentages reported for AAU Private and Public Universities are based on the combined enrollment of graduate academic and professional students compared to the total student enrollment at all levels – undergraduate, graduate and professional. (IPEDS fall 2014 data was not available at the time of publication.)

\textsuperscript{1} A list of graduate academic and professional degrees is in Appendix D.

\textsuperscript{2} A list of Association of American Universities member institutions, including institutional control, is in Appendix A.
While the total number of graduate and professional students has grown from 8,916 in 1960 to 15,230 in 2014, the fraction of the total student body on the Ann Arbor campus that they represent has varied only slightly.

5.1.2 U-M Graduate Academic and Professional Student Enrollment as Percent of Total Enrollment, with Headcount, Selected Years from 1960-2014.

SOURCE: U-M Student Data Sets.

In the chart, the number inside each column represents the total enrollment of graduate academic and professional students in the fall of that year. Over the last 50 years, Ann Arbor campus enrollment increased by about one graduate student for every two additional undergraduates.
The largest academic doctoral enrollment at U-M is in the College of Literature, Science & the Arts, while the most master's students are enrolled in the College of Engineering. Michigan's largest professional program is the M.B.A. in the Stephen M. Ross School of Business.

5.1.3 U-M Graduate Academic and Professional Student Enrollment by School/College and Degree Sought, Fall 2014.

<table>
<thead>
<tr>
<th>College/School</th>
<th>Academic Master’s</th>
<th>Academic Ph.D.</th>
<th>Professional Master’s</th>
<th>Professional Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taubman College of Architecture &amp; Urban Planning</td>
<td>114</td>
<td>48</td>
<td>328</td>
<td>-</td>
</tr>
<tr>
<td>Penny W. Stamps School of Art &amp; Design</td>
<td>16</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Stephen M. Ross School of Business</td>
<td>1</td>
<td>83</td>
<td>1,748</td>
<td>-</td>
</tr>
<tr>
<td>School of Dentistry</td>
<td>95</td>
<td>12</td>
<td>-</td>
<td>435</td>
</tr>
<tr>
<td>School of Education</td>
<td>203</td>
<td>168</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>1,239</td>
<td>1,490</td>
<td>438</td>
<td>2</td>
</tr>
<tr>
<td>Horace H. Rackham School of Graduate Studies</td>
<td>51</td>
<td>398</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>School of Information</td>
<td>-</td>
<td>57</td>
<td>353</td>
<td>-</td>
</tr>
<tr>
<td>School of Kinesiology</td>
<td>36</td>
<td>24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Law School</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,047</td>
</tr>
<tr>
<td>College of Literature, Science &amp; the Arts</td>
<td>341</td>
<td>1,998</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Medical School</td>
<td>114</td>
<td>337</td>
<td>8</td>
<td>841</td>
</tr>
<tr>
<td>School of Music, Theatre &amp; Dance</td>
<td>9</td>
<td>115</td>
<td>174</td>
<td>-</td>
</tr>
<tr>
<td>School of Natural Resources &amp; Environment</td>
<td>284</td>
<td>40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>School of Nursing</td>
<td>289</td>
<td>42</td>
<td>-</td>
<td>27</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>1</td>
<td>106</td>
<td>-</td>
<td>315</td>
</tr>
<tr>
<td>School of Public Health</td>
<td>119</td>
<td>217</td>
<td>603</td>
<td>1</td>
</tr>
<tr>
<td>Gerald R. Ford School of Public Policy</td>
<td>191</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>School of Social Work</td>
<td>-</td>
<td>-</td>
<td>618</td>
<td>-</td>
</tr>
<tr>
<td>Joint Programs sponsored by two Schools/Colleges</td>
<td>-</td>
<td>-</td>
<td>54</td>
<td>-</td>
</tr>
<tr>
<td><strong>Grand Total, Graduate Students</strong></td>
<td><strong>3,103</strong></td>
<td><strong>5,135</strong></td>
<td><strong>4,324</strong></td>
<td><strong>2,668</strong></td>
</tr>
</tbody>
</table>


The “Other” professional degrees column includes M.D., J.D., D.D.S, Pharm.D (Doctor of Pharmacy), D.Eng. (Doctor of Engineering), and D.N.P. (Doctor of Nursing Practice).

The Joint Programs (last row of table) are offered by a) the Penny W. Stamps School of Art & Design and the School of Music, Theatre & Dance, b) the Stephen M. Ross School of Business and the College of Engineering, and c) the School of Information and the School of Public Health.

A complete list of graduate academic and professional degrees offered by the University of Michigan is found in Appendix D.
Graduate academic and professional tuition and required fees vary by program.

### 5.2.1 Graduate Academic and Professional Degree Tuition and Required Fees, per Semester, 2015-16.

<table>
<thead>
<tr>
<th>School/College</th>
<th>Graduate Academic, per semester</th>
<th>Professional, per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Program</td>
<td>In-State</td>
</tr>
<tr>
<td>Taubman College of Architecture &amp; Urban Planning</td>
<td>M.S./M.U.P. Ph.D. Candidate</td>
<td>$13,617</td>
</tr>
<tr>
<td></td>
<td>M.A. Pre-candidate</td>
<td>$10,921</td>
</tr>
<tr>
<td>Penny W. Stamps School of Art &amp; Design</td>
<td>M.F.A.</td>
<td>$10,684</td>
</tr>
<tr>
<td>Stephen M. Ross School of Business</td>
<td>M.S./Pre-candidate</td>
<td>$11,805</td>
</tr>
<tr>
<td>School of Dentistry</td>
<td>M.S./Pre-candidate</td>
<td>$11,916</td>
</tr>
<tr>
<td>School of Education</td>
<td>M.A./Pre-candidate</td>
<td>$10,684</td>
</tr>
<tr>
<td>School of Engineering</td>
<td>M.A./Pre-candidate</td>
<td>$10,684</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>M.S./Pre-candidate</td>
<td>$11,375</td>
</tr>
<tr>
<td>College of Literature, Science, &amp; the Arts</td>
<td>M.A./M.S./M.Ed. Pre-candidate</td>
<td>$10,483</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,652</td>
</tr>
<tr>
<td>Medical School</td>
<td>M.S./Pre-candidate</td>
<td>$10,504</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,772</td>
</tr>
<tr>
<td></td>
<td>A.Mus.D. Candidate</td>
<td>$6,994</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,761</td>
</tr>
<tr>
<td>School of Natural Resources &amp; Environment</td>
<td>M.S./Pre-candidate</td>
<td>$10,346</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,581</td>
</tr>
<tr>
<td>School of Nursing</td>
<td>M.S./Pre-candidate</td>
<td>$10,805</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,761</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>M.S./Pre-candidate</td>
<td>$10,483</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,652</td>
</tr>
<tr>
<td>School of Public Health</td>
<td>M.S./Pre-candidate</td>
<td>$13,008</td>
</tr>
<tr>
<td></td>
<td>Ph.D. Candidate</td>
<td>$5,755</td>
</tr>
<tr>
<td>Gerald R. Ford School of Public Policy</td>
<td>M.P.P./M.P.A.</td>
<td>$11,854</td>
</tr>
<tr>
<td>School of Social Work</td>
<td>M.P.P./M.P.A.</td>
<td>$11,854</td>
</tr>
</tbody>
</table>


These cost figures represent the published rates, although many students in these programs receive financial aid, which translates to a lower net price.

Several schools and colleges offer joint degree programs; the Office of the Registrar posts the tuition and fees for these programs on its web site (ro.umich.edu).
The inflation-adjusted tuition and required fees ("sticker price") for both in-state and out-of-state Ph.D. pre-candidacy students increased about 50 percent from FY1995 to FY2015. However, as shown in chart 5.5.1, more than 90 percent of Ph.D. students receive tuition stipends or other financial support.

5.2.2 Graduate Academic Student Tuition and Required Fees, Adjusted for Inflation³, per Semester, FY1995 to FY2015.

SOURCE: Annual UM Student Fees and Regulations booklets.

Effective Fall 2010, tuition and required fees paid by Ph.D. candidates declined by $1,760 per year (dotted line). This reduction occurred at the same time that the U-M instituted a continuous enrollment policy for Ph.D. students.⁴ The policy calls for these students to register in every fall and winter semester until they complete their degrees, unless they are on approved leaves of absence. The policy is designed to improve the likelihood that students will complete their Ph.D. degrees, without imposing any new financial burden on students or graduate program budgets.

³ Based on the FY2014 U.S. Consumer Price Index.
⁴ "Policy to provide greater structure, support for Ph.D. students," University Record, Jan. 11, 2010.
The inflation-adjusted tuition and required fees for the M.B.A. and Law degrees increased more rapidly over the last 20 years than for other professional degrees offered by the U-M.

5.2.3 Graduate Professional Student Tuition and Required Fees, Adjusted for Inflation, In-State per Semester, FY1995 to FY2015.

5.2.4 Graduate Professional Student Tuition and Required Fees, Adjusted for Inflation, Out-of-State per Semester, FY1995 to FY2015.

SOURCE: Annual UM Student Fees and Regulations booklets.

† Starting in Fall 2011, D.D.S. students paid tuition three times per year instead of two, with the per-semester rate adjusted downward to be comparable with the previous annual total.

5 Based on FY 2014 U.S. Consumer Price Index.
The U-M awards more graduate academic and professional degrees than any of its peers or Big Ten schools except for Columbia University.


SOURCE: Integrated Postsecondary Education Data System (IPEDS).

At the University of Michigan, graduate academic degrees include the Ph.D., M.A., M.S. and M.F.A. U-M’s graduate professional degrees include M.D., J.D., M.B.A., D.D.S., M.P.H., M.P.H.E., Pharm.D., M.S.W., M.Arch., M.S.I., D.Eng., M.Eng., D.N.P., M.M. and Spec.M.

In this chart, the division into graduate academic or professional programs for all universities is based on the taxonomy used by the University of Michigan, and so may differ from a school’s own designations. For instance, the U-M includes all graduate degrees in the field of education with academic programs, while some of its peers choose to group education with professional programs.

A list of the “official” peers used for comparison in the top group on this page is found in Appendix A. Big Ten universities are in the bottom group.
The U-M joins UC-Berkeley and U Illinois as top producers of Ph.D. graduates among its peers.

5.3.2 Ph.D. Degrees Awarded, Headcount (top) and Percent (bottom) by Discipline Group for U-M, Peers and Big Ten Universities, 2012-13.

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

\(^7\) A list of disciplines assigned to each group is found in Appendix C.
In the life sciences, physical sciences and engineering – also known as STEM fields (science, technology, engineering and mathematics) – U-M awarded 570 Ph.D. degrees in 2012-13, behind only UC-Berkeley (588) and Stanford (578) among its peers for that academic year. The number of graduates in STEM fields is important because several analyses indicate that the American workforce will need to add about one million more STEM professionals over the next decade than the U.S. will produce at current rates.\(^8\)

To keep the comparisons consistent between U-M and the other schools included here, we assigned all degree holders for Charts 5.3.2 and 5.3.3 at the peers and Big Ten universities to the same academic disciplines and professional categories as the U-M uses, even if other schools assign the programs differently on their campuses.

\(^8\)“Engage To Excel: Producing One Million Additional College Graduates With Degrees In Science, Technology, Engineering, And Mathematics,” President’s Council of Advisors on Science and Technology (PCAST), February 2012.
More than half of U-M’s academic Master’s degrees are in STEM fields.

5.3.3 Academic Master’s Degrees Awarded, Headcount (top) and Percent (bottom) by Discipline Group⁹ for U-M, Peers and Big Ten Universities, 2012-13.

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

⁹ A list of disciplines assigned to each group is found in Appendix C.
Among the academic Master’s degrees awarded in 2012-13, 1,516 U-M students graduated in STEM fields – that is, the sciences, technology, engineering and mathematics. Among U-M’s peers, only Columbia (1,658) awarded a higher number of Master’s degrees in STEM fields.

The life sciences totals do not include students who graduated with a Master’s in Public Health and a subset of engineering graduate students who received a Master’s in Engineering (as opposed to a Master’s of Science in Engineering), as both the M.P.H. and M.Eng. degrees are counted with professional degrees.
The U-M awards more graduate professional degrees than any of its peers or Big Ten universities.

### 5.3.4 Graduate Professional Degrees Awarded, Headcount (top) and Percent (bottom) by Program for U-M, Peers\(^{10}\) and Big Ten Universities, 2012-13.

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

\(^{10}\) A list of the “official” peers used for comparison in the top group on this page is found in Appendix A. Big Ten universities are in the bottom group.
The U-M awards degrees in 13 professional programs: Business, Law, Medicine, Social Work, Dentistry, Pharmacy, Public Health, Architecture, Engineering, Information, Nursing and Music. The two aggregate degree groups in the chart have been broken down into individual degree counts in the table at the right. (Note that unlike some other universities, U-M does not include graduate degrees in the field of education with its professional degrees.)

The U-M and other schools in this chart also offer graduate academic degrees at the Master’s and Ph.D. levels in these fields. For example, the U-M College of Engineering offers academic graduate programs that enroll more students seeking a Master’s of Science in Engineering than its professional degree program, the Master’s of Engineering degree.

For some of the peer and Big Ten universities, the “Other Health” category also includes professional degrees not offered by the U-M: Veterinary Medicine, Optometry, Osteopathic Medicine, Communication Disorders, and a few other specialized health areas.
The profile of U-M doctoral student graduation rates in recent years is fairly consistent across the disciplines. Seventy percent or more of students who enrolled in a doctoral program between 2000 and 2007* on the Ann Arbor campus either have completed a Ph.D. or are on-track to complete with the next year.

5.4.1 Academic Doctoral Completion Rates by Discipline Group\textsuperscript{12}, Enrollment Cohorts from 2000-07.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{chart}
\caption{Enrollment cohorts from 2000-07, showing the number and percent of each cohort that have completed their degrees, or are still enrolled, as of August 31, 2013.}
\end{figure}

\textit{SOURCE: Horace H. Rackham School of Graduate Studies.}

This chart examines a range of enrollment cohorts and shows the number and percent of each cohort that have completed their degrees, or are still enrolled, as of August 31, 2013.

\*The 2000 cohorts in physical sciences/engineering and humanities/arts did not attain the 70 percent rate cited in the headline.

\textsuperscript{12} A list of disciplines assigned to each group is found in Appendix C.
On average, 86 percent of U-M academic Master's students complete their programs.

5.4.2 Academic Master's Completion Rates by Discipline Group, Enrollment Cohorts from 2006-11.

SOURCE: Horace H. Rackham School of Graduate Studies.

U-M Master’s programs usually require about two years to complete.

13 A list of disciplines assigned to each group is found in Appendix C.
Ninety-seven percent of Rackham graduate students pursuing Ph.D. degrees receive financial support from the University.

5.5.1 Funding Support for Rackham Ph.D. Students, 2012-13.

In all fields of study, a large fraction of academic Ph.D. students receive both tuition grants and a stipend to help cover living expenses. The level of financial aid offered varies and may not cover the full cost of attendance for every student. Stipends may be paid as part of an appointment as a Graduate Student Instructor (GSI), Graduate Student Research Assistant (GSRA), Graduate Student Staff Assistant (GSSA), or as a fellowship.

SOURCE: Horace H. Rackham School of Graduate Studies Student Records.
Financial support provided to Rackham students pursuing Master’s degrees varies by field of study.

5.5.2 Funding Support for Rackham Master’s Students, 2012-13.

The five categories of support (None, 1%-25%, 26%-50%, 51%-75%, 76%-100%) represent the fraction of the total calculated cost of attendance provided as tuition grants and stipends to students enrolled in Master’s programs. Loans that Master’s students may acquire are not included in these calculations.

SOURCE: Horace H. Rackham School of Graduate Studies Student Records.
Most U-M doctoral students graduate without any student loan debt.

5.6.1 Academic Doctoral Students’ Self-reported Cumulative Undergraduate and Graduate Debt at Graduation, by Discipline Group

This chart shows that fewer than half of University of Michigan Ph.D. students (a combined 41% over the time period shown) have acquired student-loan debt over the course of their undergraduate and graduate careers. The aggregate averages of Ph.D. graduates with debt by discipline groups vary as follows: Life Sciences (44%), Physical Sciences & Engineering (31%), Social Sciences (48%), Humanities & the Arts (54%).

The issue of student debt remains important, however. Student loan debt presents a serious challenge to scholars just starting their careers, especially for the small number of students in the life sciences, physical sciences and engineering and social sciences who have accumulated student loan debt that exceeds $100,000.


A list of the disciplines assigned to each category is in Appendix C.
After adjusting for inflation, the level of student loan debt for M.D. graduates is high, but fairly stable. It has increased for J.D. and D.D.S. graduates.

### 5.6.2 Graduate Professional Students’ Self-reported Cumulative Undergraduate and Graduate Debt at Graduation, by Program, 2003-12.

![Graph showing average debt at graduation and adjusted for inflation for M.D., J.D., and D.D.S. graduates from 2003 to 2012.](chart)

**SOURCE:** School Dean’s or Financial Aid Offices.

The debt acquired by professional students is a matter of national concern. For instance, the likelihood of incurring sizeable debt to attend a professional school may contribute to the relatively small proportion of under-represented minorities enrolled in these programs at the University (see Chart 8.6.1).

About 80 percent of M.D. graduates and 90 percent of J.D. and D.D.S. graduates have student loan debt when they complete their programs. For all programs, the debt averages are calculated based only on students with student-loan debt.

Debt for M.D. and J.D. graduates includes loans for both undergraduate and professional school. Data for D.D.S. graduates represents loans only obtained to finance Dental School.
A large fraction of Ph.D. graduates in the physical sciences and engineering go into private or non-profit sector jobs. Ph.D. graduates in the other discipline groups tend more toward higher education positions.

### 5.7 Placement Outcomes for U-M Ph.D. Students, by Discipline Group\(^{15}\), FY02-FY13.

#### Biological & Health Sciences

<table>
<thead>
<tr>
<th>Year since Ph.D.</th>
<th>Unknown</th>
<th>Unemployed/Family care/Other</th>
<th>Self-employed</th>
<th>Medical/Clinical Job</th>
<th>Non-Profit Job</th>
<th>Government/National Lab Job</th>
<th>Business/Industry Job</th>
<th>K-12/Comm. College Job</th>
<th>Other Continuing Education</th>
<th>Post-doctoral Education</th>
<th>Non-Tenure Track, Higher Ed.</th>
<th>Tenure-Track (Foreign Univ.)</th>
<th>Tenure-Track (Other U.S. Univ.)</th>
<th>Tenure-Track (AAU Univ.)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>30%</td>
<td>10%</td>
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<tr>
<td>Fifth</td>
<td>10%</td>
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<tr>
<td>Seventh*</td>
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</tr>
</tbody>
</table>

#### Physical Sciences & Engineering

<table>
<thead>
<tr>
<th>Year since Ph.D.</th>
<th>Unknown</th>
<th>Unemployed/Family care/Other</th>
<th>Self-employed</th>
<th>Medical/Clinical Job</th>
<th>Non-Profit Job</th>
<th>Government/National Lab Job</th>
<th>Business/Industry Job</th>
<th>K-12/Comm. College Job</th>
<th>Other Continuing Education</th>
<th>Post-doctoral Education</th>
<th>Non-Tenure Track, Higher Ed.</th>
<th>Tenure-Track (Foreign Univ.)</th>
<th>Tenure-Track (Other U.S. Univ.)</th>
<th>Tenure-Track (AAU Univ.)</th>
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</table>

More than half of academic Ph.D. graduates in the biological and health sciences enter post-doctoral training during the first year following graduation. As time since graduation passes, many of the post-docs move into academic positions in higher education or take jobs in industry, government or the non-profit sector.

About the same number of academic Ph.D. graduates in the physical sciences and engineering initially take a position outside of academia as enter post-doctoral training. By five years after graduation they are primarily taking jobs in industry, government or the non-profit sector, or entering academic positions.

* A methodology change for students 7- and 10-years after graduation causes an increase in the number of unknown data points.

\(^{15}\) A list of disciplines assigned to each group is found in Appendix C.
5.7 Placement outcomes for U-M Ph.D. Students, by Discipline Group, FY02-FY13 (continued).

Half of academic Ph.D. graduates in the social sciences enter a higher education position during the first year following graduation, with more than two-thirds of these on the tenure-track. By the fifth year post-graduation, nearly 60 percent of U-M’s social science Ph.D. graduates have tenure-track positions, and another 16 percent hold non-tenure-track positions at a college or university.

Ph.D. graduates in the humanities and arts are less likely to pursue postdoctoral training than their counterparts in other disciplines. A third of humanities and arts Ph.D. graduates are on the tenure track initially, and the fraction climbs to two-thirds by ten years post-graduation.

SOURCE: Survey of Academic Departments by Horace H. Rackham School of Graduate School.

Blue shades represent higher education positions, reds indicate post-doctoral or other post-graduate training, greens are positions outside of higher education, and the grays represent unknown activity or not currently employed.

* A methodology change for students 7- and 10-years after graduation causes an increase in the number of unknown data points.

16 A list of disciplines assigned to each group is found in Appendix C.
U-M graduate academic programs are attractive to students from all geographic locales.

5.8.1 Geographic Origins of U-M Ph.D. Recipients, Headcount (top) and Percent (bottom) by Discipline Group\textsuperscript{17}, 2001-2 to 2011-12.

The large number of international students enrolled in physical science and engineering graduate programs is not a surprise, given the attractiveness of these kinds of programs. According to a 2012 National Science Foundation report, international students comprise 30 percent of U.S. graduate science and engineering programs\textsuperscript{18}. For the decade displayed here, international students make up 48 percent of total enrollment in U-M physical science and engineering programs.

\textsuperscript{17} A list of disciplines assigned to each group is found in Appendix C.

A comparison of geographic origins (5.8.1) and destinations (below) of U-M graduate students illustrates that a large proportion of international students remain in the U.S. after graduation.

5.8.2 Geographic Destinations of U-M Ph.D. Recipients, Headcount (top) and Percent (bottom) by Discipline Group\(^{19}\), 2001-2 to 2011-12.


\(^{19}\) A list of disciplines assigned to each group is found in Appendix C.
U-M law, medicine and dentistry students pass their licensing exams at very high rates.


The U.S. Medical Licensing Examination is administered by the National Board of Medical Examiners in several parts: Step I exam at the end of the second year of medical school, both Step 2 exams (CK=Clinical Knowledge, CS=Clinical Skills) during the fourth year of medical school, and Step 3 exam 1-2 years after graduation. The pass rates are computed based on first-time takers of each segment.


Pass rates for the Northeast Regional Board Examination are computed for graduating U-M D.D.S. students who have passed all components of the “curriculum integrated format” examination prior to graduation.

SOURCE: Registrar, U-M Law School

SOURCE: Dean’s Office, Medical School

SOURCE: Dean’s Office, School of Dentistry.
Nullclines: $\dot{x} = 0$ when $y = g(x, y)$

$\dot{y} = 0$ when $x = f(x, y)$

Four fixed points: $\lambda = -1$
Chapter 6  Faculty & Staff

Goals
A great university is defined in large part by its outstanding faculty. The University of Michigan attracts faculty members with commitment to excellence in both teaching and research, as shown by the high quality of its graduates and the superior research and scholarship by its faculty. With regard to the staff, the University seeks the highest level of performance from the fewest number of staff members necessary to support the institution’s excellence in academics, research and service.

Overview
The faculty headcount at the University of Michigan is 6,852, while the total of faculty full-time equivalents (FTEs) is 5,861. Instructional appointments comprise 3,327 FTEs, and another 2,534 FTEs are individuals with clinical, research and other titles who are primarily involved in health care, research, and related scholarly activities.

Although statistics can hardly capture the full scope of the faculty’s activities and accomplishments, a summary of some of their awards and honors provides a glimpse into their successes. The U-M faculty currently includes 27 members of the National Academy of Sciences, 29 members of the National Academy of Engineering, 54 members of the Institute of Medicine and 81 members of the American Academy of Arts and Sciences. In addition, many faculty members have been awarded MacArthur Foundation Fellowships (aka “genius” awards), Emmy and Grammy awards, and countless other honors bestowed by scholarly and professional societies.

U-M faculty members are primarily involved in teaching, research and scholarship. However, the faculty also have service responsibilities to the university and broader academic community and society at large, as well as administrative duties and an important role in setting academic policies for admissions, the granting of degrees, and the content of the curriculum.

Staff members play key roles in the efficient and productive operation of nearly all facets of the University. Staff members are involved in the conduct and administration of research; they provide academic, housing and other services for students; handle financial operations of the institution; manage the physical and digital infrastructure of the campus; and monitor the many federal, state and professional compliance rules the institution must follow.

The average age of staff members is increasing; today 40 percent of the staff is 50 or older, whereas 31 percent fell in that age range as of Fall 2004. U-M Human Resources estimates that 19 percent of the current staff will retire by 2020.

The likelihood that a significant fraction of experienced faculty and staff members will retire during the next five to ten years offers several challenges. The skills provided by retiring employees will need to be replaced during a period when there will be pressure to control personnel growth. At the same time, the numbers of positions that will open provide an opportunity for reorganization in how responsibilities are fulfilled.

For More Information
Human Capital Report
hr.umich.edu/humancapital/

Other chapters provide information related to faculty activity, including indicators of the teaching workload (Chapter 9) and research activity (Chapter 10). The quality of the faculty influences the U-M’s placement in many national and international rankings (Chapter 13). The diversity of the faculty and staff is reported along with data for students in Chapter 8.

Chapter updated since the July 2014 edition.

Charts in Chapter 6
- 6.1.1 Academic Workforce, Headcount by Title, Fall 2014.
- 6.1.2 Academic Workforce, Full-Time Equivalents by Title, Fall 2014.
- 6.1.3 Academic Workforce by Full-Time Equivalents, 2004-14.
- 6.1.4 Detail for “All Other Academic Workforce,” by Full-Time Equivalents, 2004-14.
- 6.2.1 Tenured/Tenure-Track Faculty, Headcount by Title, Fall 2004-14.
- 6.2.2 New Hires and Departures of Tenured/Tenure-Track Faculty; Annual Net Change and Cumulative Change, 2004-14.
- 6.2.3 Age Distribution of Tenured/Tenure-Track Faculty, Fall 2004 and 2014.
- 6.3.1 Faculty Distribution by Discipline Groups, Fall 2014.
- 6.3.2 Faculty Members Elected to the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine, by Discipline, 2014.
- 6.5.1 Headcount of Regular Staff, Fall 2004-14.
- 6.5.2 Full-time Equivalent of Staff, All Funds and General Fund, Fall 2003-13.
- 6.6 Age Distribution of Staff, Fall 2004 and Fall 2014.
More than half of the academic workforce (tenured/tenure-track faculty and lecturers) is involved in instruction, whether you measure using headcount or full-time equivalents.

### 6.1.1 Academic Workforce, Headcount by Title, Fall 2014.

![Pie chart showing the distribution of academic workforce by title in Fall 2014.]

- Clinical Faculty 1,656 (24%)
- Tenured/Tenure-Track Faculty 3,051 (45%)
- Research Faculty 874 (13%)
- Lecturers 842 (12%)
- All Other Academic Workforce 429 (6%)

### 6.1.2 Academic Workforce, Full-Time Equivalents by Title, Fall 2014.

![Pie chart showing the distribution of academic workforce by title in Fall 2014.]

- Clinical Faculty 1,402 (24%)
- Tenured/Tenure-Track Faculty 2,729 (46%)
- Research Faculty 687 (12%)
- Lecturers 598 (10%)
- All Other Academic Workforce 445 (8%)


The total academic workforce is 6,852 by headcount and 5,861 by full-time equivalents (FTEs), based on data collected on November 1 each year. The difference is due to several factors: some individuals hold a fractional academic appointment and a fractional staff appointment, for instance, or may work part-time at the University and have a second position with another employer.

Tenured and tenure-track faculty members and lecturers handle the majority of instructional activities. Clinical and research faculty contribute to instruction primarily through mentoring of graduate students and research fellows, although some of these faculty also have course instructor assignments. The University of Michigan also includes librarians, curators and archivists as members of the faculty cohort for their contributions to the academic and scholarly work on campus.

“All Other Academic Workforce” includes not-on-track faculty, supplemental instructional faculty (adjunct/visiting), supplemental research faculty (adjunct/visiting), emeritus faculty, librarians, curators, and archivists.
The tenured/tenure-track faculty numbers have grown by 296 FTE between 2004 and 2014, and the number of clinical faculty (see 6.1.4) has nearly doubled over the same period.


6.1.4 Detail for “All Other Academic Workforce,” by Full-Time Equivalents, 2004-14.


The academic group growing most rapidly is the clinical faculty. The bulk of this group is comprised of physicians who provide clinical care throughout the U-M Health System. Counts are recorded as of November 1 of each year.
The total tenured and tenure-track faculty headcount has increased from 2,787 in Fall 2004 to 3,128 in Fall 2014, an increase of 341 over the decade.

6.2.1 Tenured/Tenure-Track Faculty, Headcount by Title, Fall 2004-14.

Growing the faculty ranks has been a priority over the last decade. Most recently, then-President Coleman announced in November, 2007 a commitment from the central administration to hire 100 new tenure-track faculty members to expand interdisciplinary teaching and research.¹ This initiative has focused on identifying individuals who create new clusters of junior faculty to contribute to teaching and research in common areas, such as the emerging topics of alternative energy and environmental sustainability. As of June 2011, the final cluster topics were identified².

In 2010, the central administration also funded an additional 50 new faculty positions³ to address the unanticipated growth in undergraduate student enrollment and to enhance the students’ academic experience through a reduced student/faculty ratio and smaller class sizes that are closer to those of other top universities.

The 150 faculty positions funded by the central administration through these two initiatives are additions to the faculty; the schools and colleges have their own funds to fill vacancies and add new faculty to meet their needs.

**NOTE:** A new category – not on track – was added to the faculty beginning in 2007. In 6.2.1, the not-on-track faculty members are included in the totals for 2007 and later in order to show comparable faculty member totals across the decade.

¹ “Coleman outlines faculty hiring program, new initiatives in speech,” University Record, November 19, 2007.
² “Final interdisciplinary junior faculty clusters chosen,” University Record, June 20, 2011.
³ Budget Presentation to the Board of Regents, June 17, 2010.
There has been a net increase in tenured and tenure-track faculty in eight of the last ten years.

6.2.2 New Hires and Departures of Tenured/Tenure-Track Faculty; Annual Net Change and Cumulative Change, 2004-14.

The hiring and departure decisions reported above occurred during the academic year leading up to November 1 of the year on the chart. Departures include faculty members who retire or who leave the University for other positions.

In 2004, 46 percent of the faculty was age 50 and older; today the fraction has increased to 52 percent.

6.2.3 Age Distribution of Tenured/Tenure-Track Faculty, Fall 2004 and 2014.

Tenured and tenure-track faculty members are spread broadly across the academic disciplines. Outside of the tenure-track nearly half of the faculty members are in medicine.

6.3.1 Faculty Distribution by Discipline Groups\(^4\), Fall 2014.

The “All Other Faculty” group includes clinical faculty, research faculty, adjunct and visiting faculty, librarians, curators and archivists. Some individuals with a faculty title have been excluded from this chart, as they cannot be assigned to a discipline group due to their involvement in multidisciplinary or other broadly defined teaching, research or academic duties.

In addition to the categorization by disciplines shown here, 238 members of the faculty are primarily affiliated with units that do not neatly fit into a discipline. Of these, 5 are tenured or tenure track, 74 are lecturers and 159 are other faculty types.

\(^4\) A list of disciplines assigned to each group is found in Appendix C.
100 active and retired U-M faculty members are elected members of the National Academies.

6.3.2 Faculty Members of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine, by Discipline, 2014.

Membership in the National Academies is considered to be one of the highest honors bestowed upon scientists, engineers and scholars in recognition of their distinguished and continuing achievements in original research. To date, more than 400 members of the National Academies have won Nobel Prizes.

Through the Academies, U-M faculty members serve as a source for independent, unbiased expertise on challenging issues facing the nation and the world. Their advice and insights help shape policies, inform public opinion and advance the pursuit of science, engineering and medicine.

Election to these prestigious societies is through nomination and selection by existing members in recognition of extraordinary achievements and commitment to service. In rare instances, an individual has been elected to more than one academy. U-M currently has six faculty members elected to two academies.
The salaries of U-M faculty members (excluding medical faculty) are competitive with their public university peers, and lag their private university peers.

6.4 Average Faculty Salaries by Rank for U-M\(^5\) and Peer Groups\(^6\), Adjusted for Inflation\(^7\), FY2004-14.

<table>
<thead>
<tr>
<th>Fiscal Year &amp; Rank</th>
<th>Private Peers</th>
<th>MICHIGAN</th>
<th>Public Peers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>$176.2</td>
<td>$134.9</td>
<td>$107.2</td>
</tr>
<tr>
<td>2005</td>
<td>$182.4</td>
<td>$148.6</td>
<td>$89.6</td>
</tr>
<tr>
<td>2006</td>
<td>$190.0</td>
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<tr>
<td>2007</td>
<td>$198.5</td>
<td>$146.7</td>
<td>$84.1</td>
</tr>
<tr>
<td>2008</td>
<td>$207.4</td>
<td>$113.6</td>
<td>$79.6</td>
</tr>
<tr>
<td>2009</td>
<td>$216.2</td>
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<td>$73.2</td>
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<tr>
<td>2010</td>
<td>$225.1</td>
<td>$91.6</td>
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<td>2011</td>
<td>$233.9</td>
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</tr>
<tr>
<td>2012</td>
<td>$242.7</td>
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<td>2013</td>
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<tr>
<td>2014</td>
<td>$260.3</td>
<td>$79.6</td>
<td>$40.7</td>
</tr>
</tbody>
</table>

SOURCE: American Association of University Professors, as reported in the Chronicle of Higher Education Database.

The current average annual salary of full professors at the University of Michigan is $41,600 less than the average of full professors at private peer institutions, and $10,200 more than the average of full professors at public peers. U-M associate professors currently earn $21,200 less than their private university counterparts and $4,900 more than associate professors at public peers. Assistant professors at the U-M currently earn $17,600 below those at private peer universities and $2,600 more than at public peers. All comparisons exclude medical school faculty.

Since FY2004, the pay gap has grown between U-M faculty at all levels and those at private peer universities, while the pay gap has narrowed between the U-M and its public peers. The change from last year to the current year brought full professor salaries closer to those at private peers, while the spread increased between U-M and private peer associate and assistant professors.

\(^{5}\) Faculty from the U-M and peer medical schools are not included in the data.

\(^{6}\) A list of the “official” peers used for comparison on this page is found in Appendix A.

\(^{7}\) Based on FY2014 U.S. Consumer Price Index.
The rate of growth in total Ann Arbor campus staff is low, increasing at an average annual rate of 0.9 percent over the last decade.

### 6.5.1 Headcount of Regular Staff, Fall 2004-14.

![Bar chart showing the headcount of regular staff from 2004 to 2014.](chart)


The headcount for each fiscal year is based on appointment data as of November 1. “Regular Staff” excludes supplemental staff, graduate student instructors, graduate student research assistants, graduate staff assistants, research fellows, and any non-faculty staff from U-M Health System.

8 “Staff” excludes individuals whose primary appointment is in a faculty position.
About one-third of the total number of non-Health System staff\(^9\) members on campus directly serve the University’s academic mission and are supported out of the General Fund. The remaining two-thirds of the staff – funded by other sources – take part in externally sponsored research or auxiliary activities, such as plant operations and student housing.

6.5.2 Full-time Equivalent of Staff (excluding U-M Health System Staff\(^9\)), by Fund Sources, 2003-13.


Staff FTEs paid by the General Fund were 36 percent of the total in 2003, and 37 percent of the total in 2013. Each year’s FTE total is based on November 1 appointment data.

Financial support for “Other Staff” comes from the Designated Fund, Expendable Restricted Fund, Sponsored Fund, and Auxiliary Fund.

The definition of staff for this chart does not include any of the faculty ranks.

\(^9\) “Staff” excludes individuals whose primary appointment is in a faculty position.
In 2004, 31 percent of the Ann Arbor campus non-Health System staff\(^\text{10}\) was age 50 and older; today that has grown to 40 percent.

6.6 Age Distribution of Staff, Fall 2004 and Fall 2014.

\(^{10}\)“Staff” excludes individuals whose primary appointment is in a faculty position.
Chapter 7  Diversity

Goals
The University of Michigan is a firm proponent of the educational value provided by a diverse, multicultural and inclusive campus community. Although the U.S. Supreme Court ruling in 2003 on the Admissions lawsuits and the 2006 passage of Proposal 2 put limits on the University’s actions, the U-M remains committed to fostering racial, ethnic, gender and socioeconomic diversity at the institution by all legal means possible.

Overview
The University administers an annual survey of undergraduate students, the University of Michigan Asks You (UMAY) survey. Several questions probe the campus climate with regard to feelings of respect for race/ethnicity, political and religious views, and gender and sexual orientation. Charts summarizing student responses from 2009-2011 and 2013 for these questions are included in this chapter.

Several charts are included to portray the racial/ethnic and gender composition of University of Michigan students. Among U-M’s graduate academic students, international students make up a large fraction, including half of the students enrolled in the physical sciences or engineering. Male students predominate in the physical sciences or engineering, while female students make up about three-fifths of those in other graduate disciplines.

Starting in 2010, the federal requirements for reporting race/ethnicity changed in order to provide a somewhat more complete profile of the higher education community. Universities are now required to ask whether non-Hispanic individuals have two or more race/ethnic affiliations and then further separate these into those with at least one affiliation as an Under-Represented Minority. Throughout this chapter, the race/ethnic charts provide data when available on the “Two or More URM” and “Two or More Non-URM” groups, which is currently limited to 2010-2012. (URM in the legend stands for “under-represented minority.”)

For more information
Diversity Matters at Michigan
diversity.umich.edu

Diversity at Michigan Timeline
bentley.umich.edu/exhibits/umtimeline/diversity.php

Diversity Legal Issues: Admissions Lawsuits, “Proposal 2,” Same-Sex Benefits
diversity.umich.edu/legal/

Charts in Chapter 7
7.1.1 Race and Ethnicity Distribution of the Ann Arbor Campus Community, Fall 2014.
7.1.2 Gender Distribution of the Ann Arbor Campus Community, Fall 2014.
7.2.1 Race and Ethnicity Distribution of Undergraduate Students, Fall 2004-14.
7.2.2 Gender Distribution of Undergraduate Students, Fall 2004-14.
7.4.1 Responses to “I feel that I belong at this campus,” 2009-11, 2013.
7.4.2 Response to “Students are respected here regardless of their race or ethnicity,” 2009-11, 2013.
7.4.3 Response to “I feel free to express my political beliefs on campus,” 2009-11, 2013.
7.4.4 Response to “Students are respected here regardless of their political beliefs,” 2009-11, 2013.
7.4.5 Response to “I feel free to express my religious beliefs on campus,” 2009-11, 2013.
7.4.6 Response to “Students are respected here regardless of their religious beliefs,” 2009-11, 2013.
7.4.7 Response to “Students are respected here regardless of their economic or social class,” 2009-11, 2013.
7.4.8 Response to “Students are respected here regardless of their gender,” 2009-11, 2013.
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7.5.1 Race and Ethnicity Distribution of Graduate and Professional Students, Fall 2004-14.
7.5.2 Gender Distribution of Graduate and Professional Students, Fall 2004-14.
7.5.3 Race and Ethnicity Distribution of Graduate Academic Students by Broad Discipline, Fall 2004-14.
7.5.4 Gender Distribution of Graduate Academic Students by Broad Discipline, Fall 2004-14.
7.5.5 Race and Ethnicity Distribution of Graduate Professional Students by Program, Fall 2004-14.
7.5.6 Gender Distribution of Graduate Professional Students by Program, Fall 2004-14.
About 21 percent of the campus community is an ethnic or racial minority and 11 percent is international.

7.1.1 Race and Ethnicity Distribution of the Ann Arbor Campus Community, Fall 2014.

The numbers in parentheses are the category headcounts.

“Instructional Faculty” includes tenured/tenure-track faculty and lecturers. “Other Academic” includes clinical and research faculty, all supplemental faculty, not on track faculty, emeritus faculty and research fellows. “All Faculty” includes instructional faculty and other academic, excluding research fellows (post-docs).

URM in the legend stands for “under-represented minority.” “Two or More URM” represents non-Hispanic individuals who identified two or more ethnicities and at least one of the ethnicities included African American, Hawaiian, or Native American. “Two or More non-URM” represents individuals who identified two or more ethnicities and none were under-represented minorities.

The University is regularly among the schools hosting a large number of international students. In the most recent tally of international enrollments for 2013-14, U-M ranked 11th in the nation.¹

The student body is 48 percent female, the faculty is 42 percent female, and the staff is 61 percent female.

7.1.2 Gender Distribution of the Ann Arbor Campus Community, Fall 2014.

The numbers in parentheses are the category headcounts; numbers within the columns are subset headcounts. Category definitions are the same as for chart 7.1.1.
While total undergraduate enrollment has increased 14 percent over the last decade, no large changes in the race/ethnicity profile of undergraduate students have occurred.

### 7.2.1 Race and Ethnicity Distribution of Undergraduate Students, Fall 2004-14.

![Bar chart showing race and ethnicity distribution of undergraduate students, Fall 2004-14.](chart)

**SOURCE:** U-M Student Data Sets.

Data for students who identify as Hawaiian, Two or More Under-Represented Minority (URM), or Two or More non-URM are only available for 2010 and later. Prior to 2010, students of multiple races/ethnicities were required to select a single race/ethnicity category or unknown.

“Two or More URM” represents non-Hispanic students who identified two or more ethnicities and at least one of the ethnicities included African American, Hawaiian, or Native American.
There is little change in the gender profile of undergraduate students during the last decade, which has been split nearly 50-50.

### 7.2.2 Gender Distribution of Undergraduate Students, Fall 2004-14.

![Gender Distribution Graph]

SOURCE: U-M Student Data Sets.

During the last decade, the proportion of female undergraduates was highest in Fall 2004 at 50.8% and highest for males in Fall 2012 at 51.2%. Nationally, the gender split for full-time undergraduate students is about 57 percent female and 43 percent male.²

² Digest of Education Statistics, Table 303.10, NCES 2013 Tables and Figures.
The fraction of U-M entering freshmen that come from families with annual incomes of $50,000 or less has grown slightly over the last decade, primarily among in-state students.

7.3 U-M Freshmen by Family Income, Adjusted for Inflation\(^3\), and Geographic Origin, Fall 2003-13

SOURCE: U.S. Department of Education.

Family income is based on data reported on the Free Application for Federal Student Aid (FAFSA), the online form that college students must complete to be considered for financial aid.

\(^3\) Based on 2014 U.S. Consumer Price Index.
Ninety percent of all undergraduate students say they “belong” at the U-M; a somewhat smaller fraction of under-represented minority and international students feel similarly.

7.4.1  Response to “I feel that I belong at this campus,” 2009-11, 2013.

7.4.2  Response to “Students are respected here regardless of their race or ethnicity,” 2009-11, 2013.

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.
More than 85 percent of undergraduates feel free to express political beliefs on campus. Minority and majority students express similar feelings on these questions.

7.4.3 Response to “I feel free to express my political beliefs on campus,” 2009-11, 2013.

7.4.4 Response to “Students are respected here regardless of their political beliefs,” 2009-11, 2013.

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.
Nearly 90 percent of undergraduates feel free to express religious beliefs on campus.

7.4.5  Response to “I feel free to express my religious beliefs on campus,” 2009-11, 2013.

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

7.4.6  Response to “Students are respected here regardless of their religious beliefs,” 2009-11, 2013.
A smaller percentage of under-represented minority undergraduate students compared to all undergraduates and other student sub-groups say they believe students are respected regardless of socio-economic status.

7.4.7 Response to “Students are respected here regardless of their economic or social class,” 2009-11, 2013.

[Graph showing percentage distribution of responses among different groups over the years 2009 to 2013, including Under-Represented Minority, Asian/White/Other/Unknown, International, and All Undergraduates.]

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.
More than 90 percent of male and female students say they believe students on campus are respected regardless of gender.

7.4.8 Response to “Students are respected here regardless of their gender,” 2009-11, 2013.

7.4.9 Response to “Students are respected here regardless of their sexual orientation,” 2009-11, 2013.

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

“LGBQ” includes students who self-identify as lesbian, gay, bisexual, queer or questioning.
Racial or ethnic minorities currently comprise about one-fifth of graduate and professional students. International students account for another one-fourth of the graduate and professional student population.

7.5.1 Race and Ethnicity Distribution of Graduate and Professional Students, Fall 2004-14.

SOURCE: U-M Student Data Sets.

URM in the legend stands for “under-represented minority.” “Two or More URM” represents non-Hispanic students who identified two or more ethnicities and at least one of the ethnicities included African American, Hawaiian, or Native American.

4 A list of U-M professional degree programs is found in Appendix D.
Females have comprised about 45 percent of the total graduate and professional student population for the last decade.

7.5.2 Gender Distribution of Graduate and Professional\(^5\) Students, Fall 2003-13.

SOURCE: U-M Student Data Sets.

\(^5\) A list of U-M professional degree programs is found in Appendix D.
Racial and ethnic diversity among students pursuing academic Master's and Ph.D. degrees is relatively stable, although the fraction of all graduate students who self-identify as white dropped below 50 percent for the first time in 2014.

7.5.3 Race and Ethnicity Distribution of Graduate Academic Students by Broad Discipline, Fall 2004–14.

SOURCE: U-M Student Data Sets.

6 A list of the disciplines assigned to each category is found in Appendix C.
Three-quarters of graduate students enrolled in the physical sciences or engineering are male. In other disciplines, there is more balance between genders.

7.5.4 Gender Distribution of Graduate Academic Students by Broad Discipline, Fall 2004-14.

SOURCE: U-M Student Data Sets.

7 A list of disciplines assigned to each category is found in Appendix C.
Under-represented minority students make up about 10 percent of U-M’s professional degree enrollment.

7.5.5 Race and Ethnicity Distribution of Graduate Professional Students by Program, Fall 2004-14.

SOURCE: U-M Student Data Sets.

The U-M awards graduate professional degrees in 11 disciplines. The “Other Professional” category includes programs in Dentistry, Pharmacy, Public Health, Nursing, Architecture, Engineering, Information\(^8\), Music and some jointly sponsored degree programs.

\(^8\) The School of Information Master of Science in Information (M.S.I.) became a professional degree program in 2010.
M.B.A students are three-quarters male, while females comprise 45-50 percent of students in M.D. and Law programs.

7.5.6 Gender Distribution of Graduate Professional Students by Program\(^9\), Fall 2004-14.

SOURCE: U-M Student Data Sets.

\(^9\) A list of U-M professional degree programs is found in Appendix D
Chapter 8  Teaching & Learning

Goals
The University of Michigan provides a rich academic setting for its students to help them find the right combination of courses and extra-curricular activities to meet their individual needs. Michigan offers students an array of opportunities to explore new intellectual territory, understand our global community, and learn through participation in research and service projects. Faculty members bring tremendous depth to the classroom as they share the latest in research and scholarship.

Overview
Instruction of students is a shared activity involving tenured and tenure-track faculty (3,059), lecturers (825), graduate student instructors (1,833) and clinical, adjunct and not-on-track faculty (2,000) [see chart 6.1.1].

The learning and teaching environment at the University is ever changing as the U-M strives to provide its students with the capabilities and skills that will be needed in order to become the leaders in the 21st century.

The institution must certainly support the development of all of the traditional capabilities – the ability to speak and write clearly, reason critically and quantitatively, gain competence in a student’s discipline of choice, and engage with the arts and humanities. Students must also have the confidence to innovate and take risks, develop leadership skills for group work, work effectively with individuals from diverse backgrounds and cultures, and have command of new information technologies.

The University offers undergraduate students the opportunity to participate in focused “learning communities,” each organized around an intellectual interest. These give students the opportunity to live, interact and learn with a close-knit group, including with faculty and staff.

“Global engagement” is an area of special emphasis as a focus of unique learning opportunities. The Global Michigan web portal was established to facilitate the kind of deep, cultural understanding that comes through shared experiences among students and faculty from different countries and cultures.

Fulbright grants have enabled many University of Michigan students to study and do research abroad, and U-M had more Fulbright-supported students than any other U.S. university or college in five of the last seven years. U-M students have pursued interests from structural engineering in Norway and cancer screening in Tanzania to water quality in India and literature in Germany.

University surveys of students show that they are pleased with their educational experiences and access to faculty, both within the structures of courses and outside of classes. Students also report significant intellectual growth on a number of dimensions.

In 2011, the University launched the Third Century Initiative, a $50-million program to develop teaching and scholarship innovations during the run-up to 2017, the 200th anniversary of the institution’s founding.

The Third Century Initiative, as described by then-U-M President Mary Sue Coleman, will support creative proposals that expand action-based, immersive learning in and beyond the classroom, including international experiences, undergraduate research, service learning, entrepreneurial activities and innovative courses that encourage the role of creativity in critical thinking.

"We envision new programs and academic experiences that prepare graduates who aspire to advance the public good,” said Coleman, “while also advancing our research and service work to develop solutions to the world’s most pressing problems."

One of the latest educational innovations at the U-M is its participation in Coursera, a company that was formed by two Stanford faculty members in April 2012 to host online, not-for-credit courses developed and offered by a small set of highly regarded universities (including Michigan). In September 2013, the U-M reported that over the last two years 22 faculty members have been involved in designing 19 such online courses (known as Massive Open Online Courses, or MOOCs), which in total have been offered more than 50 times and reached some 1.5 million individuals around the world.

In addition to using Coursera to offer such courses worldwide via the Internet, U-M is also exploring ways to use this technology to supplement and enhance the learning experiences of its students on campus. For example, U-M faculty may “flip” the classroom experience, using Coursera to provide lectures and other materials online to supplement greater use of engaged, interactive activities in class.

For More Information
Michigan Learning Communities
wwwlsa.umich.edu/mlc

Global Michigan
global.umich.edu/

U-M Coursera portal
www.coursera.org/umich

2. “U-M among first to offer courses through groundbreaking online approach,” Record Update, April 18, 2012.
3. “Campuswide call issued to develop massive open online courses,” University Record, Sept. 23, 2014.
### Charts in Chapter 8

<table>
<thead>
<tr>
<th>Chart</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Composition of Instructional Workforce by Full-time Equivalents (FTEs), Fall 2013.</td>
</tr>
<tr>
<td>8.2</td>
<td>Undergraduate Student-Faculty Ratio for U-M, Peers, and AAU Publics, Privates and Big Ten Averages, Fall 2013.</td>
</tr>
<tr>
<td>8.3</td>
<td>Student Participation in Michigan Learning Communities, 2013-14.</td>
</tr>
<tr>
<td>8.4.1</td>
<td>Student Participation in Educational Opportunities Abroad, FY2005-13.</td>
</tr>
<tr>
<td>8.4.2</td>
<td>Self-Reported Participation of Seniors in Global Education Experiences, 2010-11, 2013.</td>
</tr>
<tr>
<td>8.4.3</td>
<td>Self-Reported Learning Gains of Seniors in Understanding Global Issues from Time of U-M Enrollment to Senior Year, 2009-11, 2013.</td>
</tr>
<tr>
<td>8.5</td>
<td>Self-Reported Satisfaction of Seniors with Instructional Quality and Access to the Faculty, 2009-11, 2013.</td>
</tr>
<tr>
<td>8.6.1</td>
<td>Self-Reported Participation of Seniors with Faculty in Research or a Creative Project in the Current Academic Year, 2009-11, 2013.</td>
</tr>
<tr>
<td>8.6.2</td>
<td>Self-Reported Participation of Seniors in a Small Research-Oriented Seminar in the Current Academic Year, 2009-11, 2013.</td>
</tr>
<tr>
<td>8.6.3</td>
<td>Self-Reported Satisfaction of Seniors with the Opportunities for Research Experience or to Produce Creative Products, 2009-11, 2013.</td>
</tr>
<tr>
<td>8.7</td>
<td>Self-Reported Learning Gains of Seniors from Time of U-M Enrollment through Senior Year, 2013.</td>
</tr>
</tbody>
</table>
Tenured and tenure-track faculty members have the primary responsibility for instruction, often working closely with lecturers and graduate student instructors.

8.1 Composition of Instructional Workforce by Full-time Equivalents (FTEs), Fall 2013.

U-M’s ratio of undergraduate students-to-faculty is below the average of AAU public and Big Ten institutions.

8.2 Undergraduate Student-Faculty Ratio for U-M, Peers,¹ and AAU Publics, Privates and Big Ten² Averages, Fall 2013.


1 A list of the “official” peers used for comparison on this page is found in Appendix A.
2 Big Ten average based on member institutions for 2013-14.
Michigan students take advantage of many opportunities to join communities of common intellectual interest to enhance their educational experiences.

### 8.3 Student Participation in Michigan Learning Communities, 2013-14.

<table>
<thead>
<tr>
<th>Program</th>
<th>Freshmen</th>
<th>Sophomores</th>
<th>Juniors</th>
<th>Seniors</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH SCIENCES SCHOLARS PROGRAM: For students seeking to explore the health sciences.</td>
<td>112</td>
<td>25</td>
<td>5</td>
<td>1</td>
<td>143</td>
</tr>
<tr>
<td>LIVING ARTS: Brings together students in engineering, the arts, and other fields to explore creativity and innovation.</td>
<td>63</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>LLOYD HALL SCHOLARS PROGRAM: For students to pursue creative expression through writing, the visual arts, and cultural and social involvement.</td>
<td>127</td>
<td>16</td>
<td>4</td>
<td>3</td>
<td>150</td>
</tr>
<tr>
<td>MICHIGAN COMMUNITY SCHOLARS PROGRAM: For students interested in community service, civic engagement, and social justice.</td>
<td>116</td>
<td>43</td>
<td>1</td>
<td>6</td>
<td>168</td>
</tr>
<tr>
<td>MICHIGAN RESEARCH COMMUNITY: For students interested in a research partnership with a faculty member and a small, diverse, and supportive residential community.</td>
<td>114</td>
<td>37</td>
<td>3</td>
<td>2</td>
<td>156</td>
</tr>
<tr>
<td>WOMEN IN SCIENCE AND ENGINEERING RESIDENCE PROGRAM: For students with interests in the sciences, technology, engineering, mathematics, and health fields.</td>
<td>109</td>
<td>34</td>
<td>4</td>
<td>1</td>
<td>148</td>
</tr>
<tr>
<td>GLOBAL SCHOLARS PROGRAM: Prepares students to be interculturally competent global citizens, champions for meaningful change, and innovative leaders of tomorrow.</td>
<td>-</td>
<td>71</td>
<td>45</td>
<td>32</td>
<td>148</td>
</tr>
<tr>
<td>MAX KADE GERMAN RESIDENCE: Students practice German every day while living in a dedicated house that offers unique cultural events and travel to a German-speaking country.</td>
<td>-</td>
<td>14</td>
<td>7</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>HONORS PROGRAM: Offers special academic challenge to highly motivated students, personalized advising, research opportunities, close faculty contact and optional housing.</td>
<td>405</td>
<td>269</td>
<td>453</td>
<td>470</td>
<td>1,597</td>
</tr>
<tr>
<td>RESIDENTIAL COLLEGE: A small four-year program with an emphasis on languages, writing, and the arts. Students live together in the RC residence hall their first two years.</td>
<td>239</td>
<td>206</td>
<td>192</td>
<td>196</td>
<td>833</td>
</tr>
<tr>
<td>COMPREHENSIVE STUDIES PROGRAM: This program provides small enriched courses, academic advising and academic support and tutoring.</td>
<td>496</td>
<td>557</td>
<td>579</td>
<td>773</td>
<td>2,405</td>
</tr>
<tr>
<td>UNDERGRADUATE RESEARCH OPPORTUNITY PROGRAM: Students participate in research, working with faculty from all academic fields.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>~1,400</td>
</tr>
<tr>
<td>UNIVERSITY MENTORSHIP PROGRAM: For first-year students interested in being in a small peer group connected with both student and faculty/staff mentors during their first semester.</td>
<td>150</td>
<td>7</td>
<td>16</td>
<td>7</td>
<td>180</td>
</tr>
<tr>
<td>TRANSFER CONNECTIONS: for transfer students interested in being in a small peer group connected with student and faculty/staff mentors during their first semester.</td>
<td>60</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>68</td>
</tr>
</tbody>
</table>

SOURCE: Program Offices.

Michigan Learning Communities are generally self-selected groups of students and faculty, often from diverse backgrounds, drawn together by shared goals and common intellectual interests. These program combine the personal attention of a small college environment with the resources of a large research university. In some communities, the members live in the same residence hall during the academic year.
The number of Michigan students involved in international educational opportunities has doubled between fiscal years 2005 and 2012.

**8.4.1 Student Participation in Educational Opportunities Abroad, FY 2005-13.**

![Bar chart showing student participation in educational opportunities abroad from FY 2005 to FY 2013.](chart-image)


In fiscal year 2013, the U-M ranked sixth nationally in the number of students involved in study abroad. The 2013 total of 2,385 students participating in study abroad programs is a 15-percent increase over the 2012 total of 2,060 students.

The phrase “study abroad” refers to students who received academic credit for educational programs they attended abroad, and encompasses both undergraduate- and graduate-level programs. “Co-curricular education abroad” includes students who participated in non-academic programs that provided research, internship, volunteer service, or work opportunities. The co-curricular program totals cover both current students and recent graduates participating in programs such as Peace Corps, U.S. State Department internships, and the Fulbright U.S. Student Program.

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3 “U-M jumps to No. 6 in ranking of study-abroad student numbers.” *The University Record*, Nov. 17, 2014.
By the time they reach their senior year, many undergraduates report involvement in and a greater understanding of global or international topics.

### 8.4.2 Self-Reported Participation of Seniors in Global Education Experiences, 2010-11, 2013.

#### Enrolled in a course with an international or global focus

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>42%</td>
<td>42%</td>
<td>46%</td>
</tr>
</tbody>
</table>

#### Attended lectures, symposia, workshops or conferences on international or global topics

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>65%</td>
<td>65%</td>
<td>68%</td>
</tr>
</tbody>
</table>

#### Worked with a faculty member on a project with an international or global focus

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>40%</td>
<td>47%</td>
<td>44%</td>
</tr>
</tbody>
</table>

### 8.4.3 Self-Reported Learning Gains of Seniors in Understanding Global Issues from Time of U-M Enrollment through Senior Year, 2009-11, 2013.

#### Understanding the complexities of global issues

<table>
<thead>
<tr>
<th>Year</th>
<th>When started</th>
<th>Now</th>
<th>Percent Change between “When started” and “Now”</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Excellent: 30%</td>
<td>Very good: 30%</td>
<td>Good: 15%</td>
</tr>
<tr>
<td>2011</td>
<td>Excellent: 31%</td>
<td>Very good: 31%</td>
<td>Good: 14%</td>
</tr>
<tr>
<td>2010</td>
<td>Excellent: 32%</td>
<td>Very good: 32%</td>
<td>Good: 14%</td>
</tr>
<tr>
<td>2009</td>
<td>Excellent: 32%</td>
<td>Very good: 32%</td>
<td>Good: 14%</td>
</tr>
</tbody>
</table>

**SOURCE:** University of Michigan Asks You (UMAY) undergraduate survey.

In 8.4.2, data for 2009 was collected, but it is not comparable because the question responses offered to students changed in 2010.
Seniors express high levels of satisfaction with the quality of instruction they have received, the availability of small classes and with their contact with faculty members beyond the classroom and laboratory.

The percentage to the right of each bar is the sum of the fractions who replied “Very satisfied,” “Satisfied,” and “Somewhat satisfied” (the segments in shades of blue).
More than three-fifths of undergraduate seniors participate in research or a creative endeavor with a faculty member while at Michigan.

### 8.6.1 Self-Reported Participation of Seniors with Faculty in Research or a Creative Project in the Current Academic Year, 2009-11, 2013.

- 2013: 64%
- 2011: 65%
- 2010: 64%
- 2009: 68%

### 8.6.2 Self-Reported Participation of Seniors in a Small Research-Oriented Seminar in the Current Academic Year, 2009-11, 2013.

- 2013: 44%
- 2011: 37%
- 2010: 37%
- 2009: 44%

### 8.6.3 Self-Reported Satisfaction of Seniors with the Opportunities for Research Experience or to Produce Creative Products, 2009-11, 2013.

#### Satisfaction Levels
- Very Satisfied: 90%
- Satisfied: 83%
- Somewhat Satisfied: 80%
- Somewhat Dissatisfied: 77%
- Dissatisfied: 90%
- Very Dissatisfied: 83%

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

In 8.6.1, the total includes all students who answered yes to any of the following statements: “Assist faculty in research with course credit”, “Assist faculty in research for pay without course credit”, “Assist faculty in research as a volunteer without course credit”, “Work on creative projects under the direction of faculty with course credit”, “Work on creative projects under the direction of faculty for pay without course credit”, “Work on creative projects under the direction of faculty as a volunteer without course credit”.

In 8.6.2, the total includes all students who selected any response other than “Never” to the question: During this academic year, how frequently have you participated in a research-oriented seminar with faculty?”
Students report gains in their academic skills and knowledge between the time they started at Michigan and their senior year.

### 8.7 Self-Reported Learning Gains of Seniors from Time of U-M Enrollment through Senior Year, 2013.

- **Analytical and Thinking Skills**
  - When started: 29%
  - Now: 61%
  - Percent change: +29%

- **Ability to be Clear and Effective When Writing**
  - When started: 32%
  - Now: 64%
  - Percent change: +32%

- **Understanding of a Specific Field of Study**
  - When started: 56%
  - Now: 76%
  - Percent change: +20%

- **Quantitative Skills (Mathematical and Statistical)**
  - When started: 10%
  - Now: 20%
  - Percent change: +10%

**SOURCE:** University of Michigan Asks You (UMAY) undergraduate survey.

The percentage to the right of each bar is the difference between “When started” and “Now” for the sum of the fractions who replied “Excellent,” “Very good,” and “Good” (the segments in shades of blue).
Chapter 9  Research & Technology Transfer

Goals
Excellence in research and scholarly activity is a central tenet of the University of Michigan’s mission. The broad scope and overall size of the U-M’s research program, along with its emphasis on interdisciplinary approaches, contributes to Michigan’s standing as one of the world’s leading research universities. As such, the faculty attracts generous financial support from the public and private sectors.

The University envisions that the faculty will make contributions to society not only through research and scholarship reported in the ordinary academic channels, but also through the application of discoveries as innovative products and processes. The U-M places a high priority on supporting this activity through the Office of Technology Transfer and the Business Engagement Center.

Overview
Most of this chapter examines readily available data about sponsored projects. Total research expenditures by the University exceed $1.3 billion per year, with 70 percent of the University's research spending in any given year provided by outside sources. The biggest share of that research funding comes from the federal government. When research funding from all sources is counted, U-M ranks No. 2 in the nation among all universities and No. 1 among public universities.

The University’s largest fraction of grant-supported work occurs in the biomedical and clinical sciences. The U-M Medical School alone regularly attracts several hundred millions of dollars each year to support research by its faculty. In 2013, the Medical School’s $284 million in new grant funding from the National Institutes of Health was 11th highest of all U.S. medical schools.

Some research outcomes are of interest to the private sector. The Office of Technology Transfer works with faculty inventors to file patents and negotiate licensing agreements that benefit our industry partners and fund additional research and development work on campus. Regularly, U-M faculty members establish companies to develop their inventions, thanks in part to an emerging campus culture of innovation and entrepreneurship.

U-M wishes to promote partnerships that involve academia, government and industry. Toward this goal, the University has and will continue to fund interdisciplinary teams that address issues with broad societal impact.

At the same time, the U-M, as well as all of higher education, faces serious challenges to maintaining the quality and productivity of research and scholarly activity. Budget pressures from flat or declining federal funding of research will make it more difficult than ever to maintain the quality of the faculty and the facilities needed to conduct world-class research.

For More Information
Office of the Vice President for Research
www.research.umich.edu
Office of Technology Transfer
www.techtransfer.umich.edu

Charts in Chapter 9
- 9.1.4  Sponsored Research Expenditures by Type, FY2014.
- 9.2  Research Workforce by Full-time Equivalents, Fall 2013.
- 9.4.2  Revenues from Royalties and Equity Sales, FY2004-14.
- 9.5  Technology Transfer Indicators for the U-M and Research-Intensive Universities, FY2012.
During the last three decades, total research expenditures from all sources (including U-M funds) have quadrupled, even after adjusting for inflation.

9.1.1 Total Research Expenditures, Adjusted for Inflation¹, 1980-2014.

The trend in University of Michigan research expenditures (adjusted for inflation, black line) largely mirrors the total federal non-defense R&D spending (red line) through FY2006. The increase in FY2007 – indicated as (A) – is an artifact of a change how U-M calculates research spending². The further increase at (B) is due to a surge of grant support provided under the American Recovery and Reinvestment Act of 2009 (ARRA).

Likewise, the lack of growth from FY2011 in both total federal non-defense R&D and U-M research expenditures largely reflects the depletion of ARRA funds combined with overall decline in growth of federal funding of research.

The total Federal Non-defense R&D Expenditures is estimated for 2014; a final figure is not available yet.

¹ Based on 2014 U.S. Consumer Price Index.
² Starting in FY2007, research support originating from the U-M faculty medical group practice was included as research expenditures. Previously this was reported with clinical activity.
Federal grants and contracts now fund two-thirds of U-M research expenditures.

9.1.2 Research Expenditures by Major Funding Source, Adjusted for Inflation³, FY2004-14.

![Bar chart showing research expenditures by major funding source, adjusted for inflation, FY2004-14.]


The dotted line indicates that in FY2007 the U-M began to include research support from the medical group practice revenues as part of Non-sponsored research expenditures (see “A” in chart 9.1.1).

³ Based on 2014 U.S. Consumer Price Index.
The smaller rise in direct research expenditures for the last few years reflects the depletion of federal “stimulus” funding for research.

9.1.3 Direct Research Expenditures by Discipline, Adjusted for Inflation\(^4\), FY2004-14.

Direct expenditures cover salaries and benefits of researchers, whether faculty, staff or students, as well as equipment and supplies, research-related travel and other expenses tied to specific projects. Chart 9.1.5 displays overhead spending – known as “indirect” costs – that supports the entire research enterprise.

\(^4\) Based on 2014 U.S. Consumer Price Index.
More than two-fifths of the total annual sponsored research expenditures on the Ann Arbor campus pay salaries and benefits for faculty, staff and graduate students.

9.1.4 Sponsored Research Expenditures by Type, FY2014.

FY2014 Total: $865,131,880

- Indirect Costs $226M (26%)
- Salaries $306M (35%)
- Equipment $12M (1%)
- Benefits $86M (10%)
- Subcontracts $103M (12%)
- Supplies & Services $127M (14%)
- Financial Aid $20M (2%)


The FY2014 total externally sponsored research expenditures for the Ann Arbor campus was $865 million, a decline of $6.48 million from the previous year. As the chart indicates, the conduct of research and scholarship is labor-intensive with a large fraction of expenditures attributable to salaries and benefits.

Indirect costs (IDC) are the costs of University operations that are not readily assignable to a particular project. Indirect costs can be thought of as overhead, and include costs for general research administration, utilities use in research space, and other services that contribute broadly to the operation of the University’s research enterprise.

For FY2014, 26 percent of the total research expenditures went to pay for indirect costs; however, the actual indirect cost recovery rate varies for each project based on the type of research activity and the sponsor. The indirect cost rate for research funded by the Federal government or industry is 55.5 percent for on-campus research and 26 percent for off-campus research. Clinical trials conducted on campus supported by the Federal government or industry have an indirect cost rate of 30 percent.

The indirect cost rates charged to foundations and public charities vary from zero to 20 percent, according to the published policies of such non-profit sponsors. Research sponsored by State of Michigan agencies also varies depending on the specifics of the funded project.
Federal sponsored projects provide about 90 percent of indirect cost recovery funds.


The peak in indirect cost recovery for FY2011 is largely due to the bump provided by federal “stimulus” funds that had supported research. The total indirect cost recovery has dropped by nearly 11 percent since the 2011 peak year.

\(^5\) Based on 2014 U.S. Consumer Price Index.
A fall 2013 snapshot of personnel paid under sponsored projects shows that grants and contracts fund the full-time equivalent of 4,152 faculty members, post-docs, staff and students.

9.2 Research Workforce by Full-time Equivalents (FTEs), Fall 2013.


Many tenured and tenure-track faculty members play key roles in sponsored research activity. Research faculty members, post-doctoral fellows, graduate (and some undergraduate) students and a subset of the staff also contribute in major ways to the research enterprise.

The Fall 2013 total represents a drop of 168 FTEs (3.9 percent) supported on sponsored projects compared to Fall 2012.
U-M led the nation’s public universities in total research spending for seven of the last 10 years.

9.3 University R&D Expenditures, U-M and Other Leading Institutions, FY2003-12.

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</tr>
</thead>
<tbody>
<tr>
<td>Johns Hopkins U(^7)</td>
<td>$1,244M</td>
<td>$1,375M</td>
<td>$1,444M</td>
<td>$1,500M</td>
<td>$1,554M</td>
<td>$1,681M</td>
<td>$1,856M</td>
<td>$2,004M</td>
<td>$2,145M</td>
<td>$2,106M</td>
</tr>
<tr>
<td>U Michigan</td>
<td>$780M</td>
<td>$769M</td>
<td>$809M</td>
<td>$800M</td>
<td>$809M</td>
<td>$876M</td>
<td>$1,007M</td>
<td>$1,184M</td>
<td>$1,279M</td>
<td>$1,323M</td>
</tr>
<tr>
<td>U Wisconsin</td>
<td>$717M</td>
<td>$764M</td>
<td>$798M</td>
<td>$834M</td>
<td>$841M</td>
<td>$882M</td>
<td>$952M</td>
<td>$1,029M</td>
<td>$1,112M</td>
<td>$1,170M</td>
</tr>
<tr>
<td>U Washington</td>
<td>$685M</td>
<td>$714M</td>
<td>$708M</td>
<td>$778M</td>
<td>$757M</td>
<td>$765M</td>
<td>$778M</td>
<td>$1,023M</td>
<td>$1,149M</td>
<td>$1,109M</td>
</tr>
<tr>
<td>UC San Diego</td>
<td>$647M</td>
<td>$709M</td>
<td>$721M</td>
<td>$755M</td>
<td>$799M</td>
<td>$842M</td>
<td>$879M</td>
<td>$943M</td>
<td>$1,099M</td>
<td>$1,074</td>
</tr>
<tr>
<td>UC San Francisco</td>
<td>$671M</td>
<td>$728M</td>
<td>$754M</td>
<td>$796M</td>
<td>$843M</td>
<td>$885M</td>
<td>$948M</td>
<td>$936M</td>
<td>$995M</td>
<td>$1,033M</td>
</tr>
<tr>
<td>Duke U</td>
<td>$520M</td>
<td>$521M</td>
<td>$631M</td>
<td>$657M</td>
<td>$782M</td>
<td>$767M</td>
<td>$805M</td>
<td>$983M</td>
<td>$1,022M</td>
<td>$1,010M</td>
</tr>
<tr>
<td>UCLA</td>
<td>$849M</td>
<td>$773M</td>
<td>$786M</td>
<td>$811M</td>
<td>$823M</td>
<td>$871M</td>
<td>$890M</td>
<td>$937M</td>
<td>$982M</td>
<td>$1,003M</td>
</tr>
<tr>
<td>Stanford U</td>
<td>$603M</td>
<td>$671M</td>
<td>$715M</td>
<td>$679M</td>
<td>$688M</td>
<td>$704M</td>
<td>$840M</td>
<td>$908M</td>
<td>$903M</td>
<td></td>
</tr>
<tr>
<td>Columbia U</td>
<td>$438M</td>
<td>$468M</td>
<td>$535M</td>
<td>$530M</td>
<td>$546M</td>
<td>$549M</td>
<td>$590M</td>
<td>$807M</td>
<td>$879M</td>
<td>$889M</td>
</tr>
</tbody>
</table>


The U-M has been the nation’s leading public university in total research spending for the years (indicated by table cells enclosed in boxes). The University of Wisconsin is the only other institution to lead all U.S. public universities in research expenditures in some years over the last decade.

6 Starting in FY2010, the NSF ranked institutions by geographically separate campuses, each headed by a campus-level president or chancellor. Prior to that, some institutions were ranked by the aggregate R&D expenditures for all campuses in a multi-campus university or state system. For the U-M, data for FY2001-2010 includes the Ann Arbor, Dearborn and Flint campuses.

7 Johns Hopkins University expenditures include those by the Applied Physics Laboratory. In FY2012, APL R&D expenditures totaled $1.121B, 53% of JHU’s total for the year.

The list above is ordered by total research expenditures for FY2012. Private universities are in italics.
Since 2004, U-M faculty, staff and students have reported more than 3,600 inventions, leading to 1,090 agreements, nearly 1,600 U.S. patent applications, and 1,000 U.S. patents.


SOURCE: U-M Office of Technology Transfer.

Invention reports are descriptions of discoveries made by U-M faculty, staff and students with the potential to be further developed into new products or processes. Patent applications are filed for intellectual property that shows some promise for future development and application. License and option agreements are legal arrangements with companies (some of which have U-M faculty involvement) that allow the firms to use University-owned technology in products or processes being developed for the market.
Over the last decade, U-M discoveries have generated $207 million in revenues. The inventors and University share these revenues, with the U-M's portion devoted to ongoing research and development.

9.4.2 Revenues from Royalties and Equity Sales, FY2004-14.

![Bar chart showing revenues from 2004 to 2014]

SOURCE: U-M Office of Technology Transfer.

Revenues from licensing agreements support technology transfer operations as well as provide valuable resources for investment in research, education, and innovation.

Royalty revenues reached an all-time high in FY2010, largely due to one-time revenues earned under the University’s FluMist® agreement.

Royalties are periodic payments by a licensee to the University of Michigan in order to have continued access to U-M-owned intellectual property. Equity sales include transfers of stock or cash payments by a licensee to the U-M.
Since 2004, 112 new companies employing U-M discoveries were launched.

9.4.3 Formation of Start-up Companies that Utilize U-M Technology, FY2004-14.

While much of the new technology developed at the U-M is licensed to existing companies for use in new products and processes, some inventions become the basis of new enterprises. Often this occurs when the U-M inventors wish to have hands-on involvement in the further development of the technology.

Several U-M start-ups have reached a level of success such that larger firms have acquired them. For example, two medical device start-ups – HandyLab and Accuri Cytometers – were acquired by Becton Dickinson in 2009 and 2011, respectively. Arbor Networks, which provides internet protection tools, was purchased in 2010 by Tektronix Communications, and Health Media, developer of health support programs, was acquired in 2008 by Johnson & Johnson. And in October 2012, Compendia Bioscience, which has developed an oncology database that drug companies utilize in drug discovery work, was acquired by Life Technologies Corp.

In 2011, the U-M opened the Venture Accelerator at the North Campus Research Complex. The Venture Accelerator provides laboratory and office space, as well as business services, to startup companies emerging from the pipeline of new ventures at U-M Tech Transfer.

A list of U-M start-ups is found on the Office of Technology Transfer web site: (www.techtransfer.umich.edu/about/startups.php).
By several indicators of technology transfer activity, the U-M ranks highly compared to the ten U.S. universities that spend the most on research\(^7\) – and it accomplished this with the smallest licensing staff in the group.

9.5 Technology Transfer Indicators for the U-M and Research-Intensive Universities, FY2012.

<table>
<thead>
<tr>
<th>Institution (FY2012 R&amp;D Expenditures)</th>
<th>Invention Reports</th>
<th>Issued Patents</th>
<th>New Agreements</th>
<th>Startups</th>
<th>License Revenue</th>
<th>FTE Licensing Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIT ($1,556M)</td>
<td>690</td>
<td>219</td>
<td>107</td>
<td>16</td>
<td>$137.1</td>
<td>21.0</td>
</tr>
<tr>
<td>Johns Hopkins U(^8) ($2,004M)</td>
<td>427</td>
<td>79</td>
<td>157</td>
<td>8</td>
<td>$15.9M</td>
<td>16.6</td>
</tr>
<tr>
<td>MICHIGAN ($1,274M) 3(^{rd})</td>
<td>368 (8(^{th}))</td>
<td>101 (5(^{th}))</td>
<td>123 (3(^{rd}))</td>
<td>11 (5(^{th}))</td>
<td>$13.9M (10(^{th}))</td>
<td>9.0 (11(^{th}))</td>
</tr>
<tr>
<td>U Wisconsin ($1,190M)</td>
<td>373</td>
<td>153</td>
<td>60</td>
<td>4</td>
<td>$41.1M</td>
<td>18.0</td>
</tr>
<tr>
<td>U Washington ($996M)</td>
<td>462</td>
<td>61</td>
<td>209</td>
<td>9</td>
<td>$77.0M</td>
<td>11.7</td>
</tr>
<tr>
<td>U Illinois ($972M)</td>
<td>407</td>
<td>112</td>
<td>90</td>
<td>12</td>
<td>$21.4M</td>
<td>22.0</td>
</tr>
<tr>
<td>Ohio State U ($934M)</td>
<td>319</td>
<td>41</td>
<td>33</td>
<td>5</td>
<td>$2.2M</td>
<td>9.9</td>
</tr>
<tr>
<td>U Pennsylvania ($911M)</td>
<td>385</td>
<td>73</td>
<td>111</td>
<td>14</td>
<td>$17.9M</td>
<td>12.0</td>
</tr>
<tr>
<td>Stanford U ($854M)</td>
<td>504</td>
<td>201</td>
<td>137</td>
<td>Not reported</td>
<td>$76.7M</td>
<td>20.0</td>
</tr>
<tr>
<td>U Minnesota ($850M)</td>
<td>321</td>
<td>59</td>
<td>75</td>
<td>12</td>
<td>$45.7M</td>
<td>18.0</td>
</tr>
<tr>
<td>Duke U ($840M)</td>
<td>215</td>
<td>50</td>
<td>123</td>
<td>6</td>
<td>$24.6M</td>
<td>9.3</td>
</tr>
</tbody>
</table>

SOURCE: Association of University Technology Managers.

The highest technology transfer indicator value in each category is highlighted in green. The University of Michigan rank for every indicator is listed next to each indicator’s number value. These universities are ordered according to the size of their research expenditures, as reported the Association of University Technology Managers.

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7 The University of California System and University of Texas System report their indicators in the aggregate, not by individual university, so comparisons to schools such as UC-San Diego, UCLA or UT-Austin are not possible.

8 Johns Hopkins data do not include the federally supported Applied Physics Laboratory on the JHU campus.
Chapter 10 Finances & Fundraising

Goals
The University budget is built to reflect the institution’s commitments to academic excellence and affordability. Managing the budget so as to meet these dual goals is an ever more complex endeavor. Cost containment is important, both to allow for reallocation of resources due to projected slow revenue growth and to fund new investments in financial aid, faculty, academic programs, research and entrepreneurial programs. Fundraising activity – in support of current activities and to build the endowment – makes vital contributions to the University’s budget.

Narrative
The revenue mix is evolving, especially as the academic functions rely increasingly on tuition and research funding to replace declining revenues from state appropriations. In fact, adjusted for inflation, the FY2015 state appropriation is equivalent to the FY1964 appropriation.

The expenditures mix has not changed much during the past decade. However, with enrollment now about 15 percent higher than 10 years ago, the smaller percentage of expenditures allocated to instruction, research and public service indicates that cost-saving efforts are improving the efficiency of the academic program delivery.

Alumni giving rates are comparable to many public universities. Nevertheless, the institution is making efforts to boost the number of alumni donors.

In November 2013, the University officially launched its latest fundraising campaign with a goal of $4 billion. Through November 30, 2014, donors have made gifts and pledges totaling $2.49 billion.1

The University manages its endowment to meet donors’ expectations that their gifts will provide support to the University in perpetuity. The objective is to maintain and enhance the value of endowment gifts and to secure their future purchasing power.

For More Information
Michigan Model for Financial Strategy and Cost Control
www.vpcomm.umich.edu/pa/key/budget/

U-M Budget Model
www.provost.umich.edu/budgeting/budget.html

U-M Endowment Q&A
www.vpcomm.umich.edu/pa/key/endow_qa.html

Leaders & Best (U-M Giving)
leadersandbest.umich.edu

Chart updated since the July 2014 edition.

Charts in Chapter 10
10.1.1 Breakout of FY2015 General Fund Budget for the Ann Arbor campus.
10.1.3 Funds Breakdown of Revenue and Expenditure Budget Summary for Ann Arbor Campus, FY2005-15.
10.2 Relative Contributions to the University’s General Fund by State Appropriations, Tuition and Fees, and Other Revenues, FY1970-2015.
10.5 Total Gifts to the University, by Gift Type, FY2004-14.

1. “Victors for Michigan campaign has raised $2.49 billion so far.” The University Record, Dec. 5, 2014.
Two-thirds of the U-M’s annual General Fund budget directly supports academic activities.

10.1.1 Breakout of FY2015 General Fund Budget for the Ann Arbor campus. (updated 8/1/2014)

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<tr>
<td>State Appropriation</td>
<td>320,662</td>
<td>314,733</td>
<td>325,796</td>
<td>320,156</td>
<td>329,908</td>
<td>316,572</td>
<td>315,148</td>
<td>268,803</td>
<td>273,057</td>
<td>279,109</td>
<td>295,174</td>
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<td>Tuition and Fees</td>
<td>675,392</td>
<td>725,108</td>
<td>777,367</td>
<td>840,566</td>
<td>894,487</td>
<td>948,461</td>
<td>1,015,952</td>
<td>1,090,340</td>
<td>1,156,647</td>
<td>1,217,808</td>
<td>1,277,842</td>
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<td>Indirect Cost Recovery</td>
<td>156,458</td>
<td>165,384</td>
<td>170,560</td>
<td>164,710</td>
<td>171,569</td>
<td>180,191</td>
<td>212,467</td>
<td>218,291</td>
<td>211,616</td>
<td>219,303</td>
<td>213,874</td>
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<tr>
<td>Other Revenue</td>
<td>10,870</td>
<td>15,260</td>
<td>21,325</td>
<td>22,230</td>
<td>12,830</td>
<td>9,785</td>
<td>9,678</td>
<td>9,603</td>
<td>7,820</td>
<td>7,920</td>
<td>8,020</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td><strong>1,163,382</strong></td>
<td><strong>1,220,485</strong></td>
<td><strong>1,295,048</strong></td>
<td><strong>1,347,661</strong></td>
<td><strong>1,408,794</strong></td>
<td><strong>1,455,010</strong></td>
<td><strong>1,553,245</strong></td>
<td><strong>1,587,037</strong></td>
<td><strong>1,649,140</strong></td>
<td><strong>1,724,140</strong></td>
<td><strong>1,794,910</strong></td>
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</table>

<table>
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<th>Expenditure Budgets by Unit</th>
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</thead>
<tbody>
<tr>
<td>Schools and Colleges</td>
<td>674,235</td>
<td>705,376</td>
<td>744,999</td>
<td>779,497</td>
<td>812,445</td>
<td>821,383</td>
<td>890,861</td>
<td>910,684</td>
<td>959,038</td>
<td>994,968</td>
<td>1,018,185</td>
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<tr>
<td>University Academic Units</td>
<td>45,233</td>
<td>46,213</td>
<td>47,715</td>
<td>49,475</td>
<td>57,640</td>
<td>59,294</td>
<td>59,543</td>
<td>60,468</td>
<td>62,000</td>
<td>63,995</td>
<td>66,003</td>
</tr>
<tr>
<td>Research Units</td>
<td>4,251</td>
<td>4,191</td>
<td>3,608</td>
<td>4,305</td>
<td>4,116</td>
<td>3,158</td>
<td>4,314</td>
<td>4,969</td>
<td>4,943</td>
<td>4,779</td>
<td>3,326</td>
</tr>
<tr>
<td>Academic Program Support</td>
<td>35,050</td>
<td>35,455</td>
<td>41,987</td>
<td>49,233</td>
<td>58,328</td>
<td>70,592</td>
<td>81,860</td>
<td>62,991</td>
<td>63,548</td>
<td>69,073</td>
<td>79,912</td>
</tr>
<tr>
<td>Capital Renewal Fund</td>
<td>2,507</td>
<td>16,566</td>
<td>30,300</td>
<td>41,894</td>
<td>44,905</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive Officer and Service Units</td>
<td>218,942</td>
<td>218,134</td>
<td>230,229</td>
<td>233,298</td>
<td>234,949</td>
<td>238,196</td>
<td>240,365</td>
<td>245,712</td>
<td>248,989</td>
<td>256,646</td>
<td>259,499</td>
</tr>
<tr>
<td>North Campus Research Complex</td>
<td>11,341</td>
<td>15,324</td>
<td>20,342</td>
<td>240,365</td>
<td>245,712</td>
<td>248,989</td>
<td>256,646</td>
<td>259,499</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Aid</td>
<td>78,099</td>
<td>84,759</td>
<td>90,920</td>
<td>99,058</td>
<td>106,594</td>
<td>117,790</td>
<td>126,056</td>
<td>134,255</td>
<td>144,768</td>
<td>161,170</td>
<td>183,444</td>
</tr>
<tr>
<td><strong>Total Expenditures</strong></td>
<td><strong>1,163,382</strong></td>
<td><strong>1,220,485</strong></td>
<td><strong>1,295,048</strong></td>
<td><strong>1,347,661</strong></td>
<td><strong>1,408,794</strong></td>
<td><strong>1,455,010</strong></td>
<td><strong>1,553,245</strong></td>
<td><strong>1,587,037</strong></td>
<td><strong>1,649,140</strong></td>
<td><strong>1,724,140</strong></td>
<td><strong>1,794,910</strong></td>
</tr>
</tbody>
</table>

Table entries are dollars in thousands.

SOURCE: University of Michigan Office of Budget and Planning.
In addition to the General Fund, the U-M Ann Arbor operating budget projects revenues and expenditures for three additional funds: Designated, Expendable Restricted, and Auxiliary Activities.

### 10.1.3 Breakdown by Funds of Revenue and Expenditure Budget Summary for Ann Arbor Campus, FY2005-15.

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</thead>
<tbody>
<tr>
<td>General</td>
<td>1,163,382</td>
<td>1,220,485</td>
<td>1,295,048</td>
<td>1,374,661</td>
<td>1,408,794</td>
<td>1,455,010</td>
<td>1,553,245</td>
<td>1,587,037</td>
<td>1,649,140</td>
<td>1,724,140</td>
<td>1,794,910</td>
</tr>
<tr>
<td>Designated</td>
<td>101,475</td>
<td>112,625</td>
<td>119,750</td>
<td>140,075</td>
<td>143,420</td>
<td>134,770</td>
<td>136,270</td>
<td>137,490</td>
<td>137,540</td>
<td>143,190</td>
<td>172,489</td>
</tr>
<tr>
<td>Expendable Restricted</td>
<td>759,741</td>
<td>845,416</td>
<td>881,390</td>
<td>879,590</td>
<td>898,481</td>
<td>969,709</td>
<td>1,053,733</td>
<td>1,110,109</td>
<td>1,094,334</td>
<td>1,097,197</td>
<td>1,054,926</td>
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<tr>
<td>Auxiliary Activities</td>
<td>2,041,115</td>
<td>2,260,687</td>
<td>2,392,303</td>
<td>2,415,498</td>
<td>2,617,270</td>
<td>2,646,668</td>
<td>2,838,824</td>
<td>2,932,963</td>
<td>3,198,411</td>
<td>3,406,856</td>
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<td>Total Revenues</td>
<td>4,065,713</td>
<td>4,439,214</td>
<td>4,688,491</td>
<td>4,782,824</td>
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<td>5,206,156</td>
<td>5,582,073</td>
<td>5,767,599</td>
<td>6,079,425</td>
<td>6,371,383</td>
<td>6,616,189</td>
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</table>

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>1,163,382</td>
<td>1,220,485</td>
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<td>1,408,794</td>
<td>1,455,010</td>
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<td>1,587,037</td>
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<td>1,724,140</td>
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</tr>
<tr>
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<td>134,770</td>
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<td>137,490</td>
<td>137,540</td>
<td>143,190</td>
<td>172,489</td>
</tr>
<tr>
<td>Expendable Restricted</td>
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<td>845,416</td>
<td>881,390</td>
<td>879,590</td>
<td>898,481</td>
<td>969,709</td>
<td>1,053,733</td>
<td>1,110,109</td>
<td>1,094,334</td>
<td>1,097,197</td>
<td>1,054,926</td>
</tr>
<tr>
<td>Auxiliary Activities</td>
<td>2,022,677</td>
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<td>2,581,993</td>
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<td>2,773,513</td>
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<td>3,239,005</td>
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<td>Total Expenditures</td>
<td>4,047,275</td>
<td>4,395,914</td>
<td>4,631,663</td>
<td>4,726,614</td>
<td>5,032,687</td>
<td>5,206,618</td>
<td>5,516,761</td>
<td>5,849,883</td>
<td>6,120,019</td>
<td>6,459,795</td>
<td>6,660,596</td>
</tr>
</tbody>
</table>

Table entries are dollars in thousands.

**SOURCE:** University of Michigan Office of Budget and Planning, Office of Financial Analysis.

The total budget of the University of Michigan Ann Arbor is allocated to a wide range of activities, including instruction, research, administration, health care, student financial aid, student housing and athletics, among others. The revenue and expenditure budgets are divided into four main funds, which track broad campus activity groups.

The General Fund is used for operating purposes to support instruction, research, and public service; academic and other student services; operation and maintenance of the university’s physical plant; and university-funded financial aid. Revenues for the General Fund come from State of Michigan appropriations, student tuition and fees, indirect cost recovery tied to sponsored grants and contracts, and other income. (See Table 10.1.2 for a breakdown of General Fund revenues and expenditures.)

The Designated Fund is similar to the General Fund in that both support the academic mission of the university, although the Designated Fund revenue sources differ substantially from those for General Fund. The major sources of income in the Designated Fund are departmental revenue for continuing education (non-degree granting), conferences and seminars, royalty income, endowment distribution from unrestricted endowments, publishing of teaching and research data, unrestricted gifts (President only), and investment income from the University Investment Pool for cash held in this fund.

The Expendable Restricted Fund includes spending for research and other sponsored activities, such as research, financial aid, instruction, etc., with the funds originating from the federal government, other governmental units, non-federal agencies, foundations and charitable organizations, gifts, and endowment distributions. These funds are restricted and may only be used for expenditures relating to the specific purposes as stated by the sponsor or donor.

The Auxiliary Activities Fund supports activities that charge customers for goods and services provided. Auxiliary units include the U-M Hospital and Health Centers, student housing, intercollegiate and varsity athletics, and parking.
The state appropriation's share of the General Fund has declined steadily and dramatically since 1970.

10.2 Relative Contributions to the University’s General Fund by State Appropriations, Tuition and Fees, and Other Revenues, FY1970-2015.

The state appropriation for FY2015 is $295.2 million, 16 percent of the General Fund revenues for the year. In FY1970, the state appropriation represented 64 percent of the Ann Arbor campus General Fund. By contrast, tuition and required fees for FY2015 are 71 percent of the General Fund; in FY1970, tuition was 26 percent of the General Fund. The crossover year was FY1991, when the State Appropriation and Tuition each provided 45 percent of the General Fund revenues.

Prior to FY1969, indirect cost recovery was not included in the General Fund.

SOURCE: University of Michigan Financial Reports.
The gap between the purchasing power for the FY2002 state appropriation and the actual state appropriation has grown to $167 million as of FY2015 (down $11 million from the peak gap year of FY2013).


In actual dollars, the state appropriation for the Ann Arbor campus peaked at $363.56 million in FY2002. Factoring in inflation, the 2015 state appropriation for the Ann Arbor campus needed to be $462 million to equal the 2002 appropriation’s purchasing power. The actual FY2015 state appropriation is $295.2 million.

Put into historical context, the FY2015 state appropriation of $295.2M equaled the actual FY1997 appropriation. Adjusted for inflation, the FY2015 appropriation has the same purchasing power as the FY1964 appropriation.

SOURCE: University of Michigan Financial Reports.

3 Based on the Detroit Consumer Price Index for 2015.
State support per U-M enrolled student, when adjusted for inflation, is 36% lower than a decade ago.


This chart is based on the simple calculation of dividing the actual State of Michigan inflation-adjusted appropriation to the Ann Arbor campus by the official fall semester third-week enrollment count. The 2015 figure is based on the projected Fall 2014 enrollment is set equal to the Fall 2014 count; the chart will be updated once the official Fall enrollment is determined.

Gifts are an important source of revenue that supports many current and future academic activities and campus facilities.

A new major fundraising campaign, Victors for Michigan, was officially launched on November 7, 2013. The campaign goal is $4 billion, the largest goal in the history of public education. As of November 30, 2014, donors have made gifts and pledges totaling $2.49 billion.

The University’s previous capital campaign – The Michigan Difference – raised $3.1 billion in gifts and pledges from more than 364,000 donors between July 2000 and December 2008.

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SOURCE: U-M Office of Development

5 “University launches Victors for Michigan campaign to raise $4 billion,” The University Record, Nov. 7, 2013.
6 “Victors for Michigan campaign has raised $2.49 billion so far,” The University Record, Dec. 5, 2014.
The total value of the University of Michigan-Ann Arbor endowment has recovered from the losses experienced during the recession that started in 2008.

10.6.1 Total Value of U-M Endowment, Ann Arbor Campus, Adjusted for Inflation<sup>8</sup>, 2004-14.

The decline in value for 2009 over 2008 corresponds to the sharp losses sustained by the stock and bond markets and recession that ensued, but the value has been reserved. The value of the endowment funds shown in the chart is the value on June 30 of each year.


The University of Michigan’s endowment is essential to sustaining academic quality. Endowment funds are invested for the long-term, and earnings from those investments provide a guaranteed source of income to support in perpetuity professorships, student scholarships, innovative programs and learning opportunities. Donors who contribute to the endowment do so because they want to support the University and positively impact U-M students and academic programs now and in the future.

<sup>8</sup> Based on 2014 U.S. Consumer Price Index.
The U-M has the largest endowment among its public university peers.


The U-M endowment market value grew by 8 percent from FY2012 to FY2013. The average North American college endowment fund value grew by nearly 12 percent in the 2013 budget year\(^10\), according to an annual survey of 835 institutions by Commonfund and the National Association of College and University Business Officers (NACUBO).

An asterisk after the institution name indicates it is a private university.

\(^9\) The change in market value does NOT represent the rate of return for the institution’s investments. Rather, the change in the market value of an endowment from FY 2012 to FY 2013 reflects the net impact of withdrawals to fund institutional operations and capital expenses; the payment of endowment management and investment fees; additions from donor gifts and other contributions; and investment gains or losses.

\(^{10}\) FY2013 NACUBO-Commonfund Report

Chapter 11 Space & Sustainability

Goals
Campus space must support the academic and research missions of the University. To accomplish this requires appropriate space policies, capital planning, and usage monitoring to ensure that space is managed strategically, thoughtfully, and with broader institutional needs in mind. The U-M has also established sustainability goals, such as reducing greenhouse gas emissions, carbon output of university vehicles, and shrinking the amount of waste sent to landfills.

Overview
The physical plant of the University of Michigan Ann Arbor campus is extensive.

- 595 buildings, 2,000 classrooms and instructional labs, 1,100 study rooms, and 6,200 research labs/rooms.
- 643 elevators and escalators.
- 35 million gross square feet of buildings and core infrastructure.
- 29 miles of roads and 4.6 million square feet of sidewalks, steps, and plazas.
- 323 acres of parking lots/decks.
- 7 miles of utility tunnels and 200 miles of fiber optic cable.
- 204,000 network desktop computers.
- 6 enterprise-level data centers and 2,347 virtual servers.
- 16,500 trees and 13 million square feet of turf.

Space utilization guidelines have been established for classrooms, food service, research activities, and offices. In particular, effective class and classroom scheduling is critical to the academic mission of the University. It enables students to take the classes they need in a timely manner and contributes to on-going cost containment efforts through efficient space utilization and good stewardship of our valuable institutional resources.

The condition of buildings requires regular monitoring to ensure that renovations and/or new construction occur in a cost-efficient manner while meeting the needs of the academic and research community.

The campus sustainability initiative brings together education, research, and operations into a single campus-wide sustainability brand, known as Planet Blue. Recently, the University established two groups to review progress made toward sustainability goals originally set in 2011 and determine how to enhance campus sustainability efforts.

For More Information
Space Planning and Utilization
provost.umich.edu/space/
Planet Blue
sustainability.umich.edu/

Charts in Chapter 11

11.1 Total Facilities Space on the Ann Arbor Campus, by General Fund and All Other Funds, FY 2004-2014.
11.2.1 Ann Arbor Campus Space, by Room Type, FY2004-14.
11.2.2 Ann Arbor Campus Space, by Function, FY2004-14.
11.3 Age of Ann Arbor Campus General Fund Space, by 10-year Increments.
11.6 Ratio of General Fund Infrastructure Renovation Costs to Total Replacement Costs, FY2004-14.
11.7.1 Building Energy Use, Total and Per Square Foot Per Person, FY2004-14.
11.7.3 Waste, Total and Percent Recycled, FY2004-14.
11.7.4 Paper Purchased by Percent Recycled Content, FY2008-14.

1 Data summarized in bulleted list includes all of the Ann Arbor campus, academic space as well as the U-M Health System and the North Campus Research Complex.

2 Campus sustainability goals set for review by working groups, The University Record, Nov. 5, 2014.
Ann Arbor campus space (excluding the Health System) is about equally divided between General Fund and Other Funds. Since 2004, the General Fund-supported space grew by 1.15 million net assignable square feet.

11.1 Total Facilities Space on the Ann Arbor Campus (excluding the U-M Health System and North Campus Research Complex), by General Fund and All Other Funds, FY 2004-2014.

Space supported by the General Fund is mainly used for teaching, research, student services, support of the campus physical plant, and administration. All Other Funds space is primarily comprised of residence halls, parking structures and varsity athletic facilities. Both categories exclude common areas, such as hallways, staircases and lobbies.
Ann Arbor campus space (excluding the U-M Health System and the acquisition of the North Campus Research Complex) has increased by less than 2.2 million net assignable square feet over the last decade.

### 11.2.1 Ann Arbor Campus Space, by Room Type, FY2004-14.

![Ann Arbor Campus Space, by Room Type, FY2004-14.]

**SOURCE:** U-M Office of Space Analysis.

Neither this chart nor 11.2.2 includes the space assigned to the U-M Health System or the North Campus Research Complex.

Space that is either not in use or being remodeled is in the unclassified category; campus facilities and buildings move into and out of this category from year-to-year. General use space covers rooms used for performances, exhibitions, food service, recreation, lounges, and meeting rooms. Plant, Parking and Other encompasses central computing and telecommunications rooms, parking structures and garages (but not surface lots), health care space that is not part of the U-M Health System, housing for research animals, media production facilities, and storage.

Net assignable space excludes hallways, restrooms, elevators, and custodial areas.
All types of space are needed to support the University’s mission.

11.2.2 Ann Arbor Campus Space, by Function, FY2004-14.

Neither this chart nor 11.2.1 includes the space assigned to the U-M Health System or the North Campus Research Complex.

Space in the unclassified category is either not in use or being remodeled. Plant and Operations includes space used in the operation and maintenance of the University’s physical plant, its heating/cooling and other utilities services, central information technology services, and some special service operations, such as printing services. Space assigned to the Other Institutional Activities category includes a long list of functions, such as development, government and community relations, student clubs and organizations, as well as University space leased to private entities or operated under a management agreement with an outside entity (i.e. food service in the student unions).

Net assignable space excludes hallways, restrooms, elevators, and custodial areas.

About 58 percent of the General Fund building space on campus is less than 50 years old.

### 11.3 Age of Ann Arbor Campus General Fund Space, by 10-year Increments.

<table>
<thead>
<tr>
<th>Age of Building (or Building Segment) Since Completion of Construction, in Years</th>
<th>Gross Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 10 yrs.</td>
<td>2,500,000</td>
</tr>
<tr>
<td>10-20 yrs.</td>
<td>2,000,000</td>
</tr>
<tr>
<td>20-30 yrs.</td>
<td>1,500,000</td>
</tr>
<tr>
<td>30-40 yrs.</td>
<td>1,000,000</td>
</tr>
<tr>
<td>40-50 yrs.</td>
<td>500,000</td>
</tr>
<tr>
<td>50-60 yrs.</td>
<td>1,600,000</td>
</tr>
<tr>
<td>60-70 yrs.</td>
<td>1,100,000</td>
</tr>
<tr>
<td>70-80 yrs.</td>
<td>600,000</td>
</tr>
<tr>
<td>80-90 yrs.</td>
<td>800,000</td>
</tr>
<tr>
<td>90-100 yrs.</td>
<td>800,000</td>
</tr>
<tr>
<td>Over 100 yrs.</td>
<td>600,000</td>
</tr>
</tbody>
</table>

**SOURCE:** U-M Data Warehouse.

The General Fund building space for the Ann Arbor campus and nearby areas totals 14.9 million gross square feet. Buildings on campus that are more than 100 years old include the President’s House, Newberry Hall, Tappan Hall, the Detroit Observatory, Burnham House, and two barns at Matthaei Botanical Gardens; the 100-year-old structures contribute about 850,000 gross square feet to the campus total.

The last ten years saw a large increase in new construction on campus. During this period, the U-M built the Biomedical Sciences Research Building, Undergraduate Science Building, Palmer Commons, Computer Science Building, and the Ross School of Business building.

Buildings associated with auxiliary activities (e.g., U-M Health System, student residence halls and athletic facilities) are not included in this chart because these facilities are not supported by the General Fund. Also, this chart does not include buildings in the North Campus Research Complex, which was acquired by the University in 2009.
The U-M has an ongoing commitment to the renewal of its physical plant.


This chart summarizes the projects that have been completed or removed during the FY1999-2014 period. The University has added several new buildings and completed the renovation and replacement of several more during the last decade. Among these, the U-M opened the North Quad Residential and Academic Complex in fall 2010. The complex is the first new residence hall constructed on the Ann Arbor campus in more than 40 years and one of the largest construction projects in its history. The replacement for the C.S. Mott Children’s Hospital and the Women’s Hospital, the latter renamed the Von Voigtlander Women’s Hospital, went into service in December 2011.

Energy-related capital projects have included utilities upgrades, conservation measures and new “chiller” infrastructure that consolidates and improves the control of building environments.

Demolition figures represent deferred maintenance needs, which are eliminated once a building is razed.
The University tries to maintain a balance between adding new space and renovating existing space on campus.


The FY2009 new construction/renovation expenditure total does not include the purchase of North Campus Research Complex (NCRC) for $108M. However, expenditures for subsequent renovation to NCRC space is included.


3 Based on 2014 Building Cost Index published by Engineering News-Record.
The overall condition of General Fund buildings on campus has improved over the last decade as measured by the ratio of infrastructure renovation costs to total replacement costs.

The facilities condition ratio is an indicator of building condition that divides the cost of needed building renovations by the cost to replace those structures. The ratio maximum of 1.0 indicates that the cost of renovating the existing facilities equals their total replacement. A ratio of 0 would mean no renovations are necessary; that is, the facilities are all new or newly renovated.

Two ratios are presented: in blue, the ratio considers all campus buildings – new, renovated and existing; in red, new buildings have been removed from the data before the ratio is calculated.

**Source:** U-M Office of Financial Analysis.
As the total square footage of campus building increases, so does the total energy use by campus buildings overall. However, the rate of energy consumption per square foot per person has remained flat over the last seven years.

**11.7.1 Building Energy Use, Total and Per Square Foot Per Person, FY2004-14.**

Total greenhouse gas emissions based on campus activities have leveled off in the past several years.

**11.7.2 Greenhouse Gas Emissions, Total and Percent of Emissions by Energy Generation Source, FY2004-14.**

![Graph showing greenhouse gas emissions by energy generation source over fiscal years 2004 to 2014.]


The level of greenhouse gas emissions is influenced by two factors: total energy usage and the energy provider. University-generated energy is highly optimized for efficient production and to limit greenhouse gas production. However, much of the purchased electricity consumed on campus is generated by coal-fired plants, which produces relatively high levels of greenhouse gases. Even so, natural gas is becoming more competitive with coal as a fuel source, and as the U-M’s external energy providers shift toward natural gas, greenhouse gas emissions have leveled off.
Total waste created on campus remains below the 2009 peak, with nearly 30 percent of the waste being recycled.

11.7.3 Waste, Total and Percent Recycled, FY2004-14.

Even as the total amount of paper purchased by the University is declining, the fraction of the total with recycled content has, in general, increased.

11.7.4 Paper Purchased by Percent Recycled Content, FY2008-14.

Chapter 12 Academic & Reputational Rankings

The publication of university and college rankings has grown increasingly popular since *U.S. News & World Report* released the results of its first reputational survey of U.S. universities in 1983. While some rankings today remain a compilation of opinions, most rankings (including *U.S. News & World Report*) now blend survey results and quantitative data. The sponsor of each ranking sorts and organizes the data by its chosen methodology and creates an ordered list of institutions that reflects the aspects of universities and academic programs it considers most important.

In this chapter, we provide results from several well-known rankings, some of which have been released over many years. The University of Michigan is pleased to be ranked consistently as one of the nation’s finest universities by *U.S. News* and others, but it also recognizes that these types of strict rankings are not the most accurate measure of the quality of an institution of higher education. Rather, it is the excellence of our faculty that is the single-most important factor in determining the quality of our educational mission.

The top schools are generally quite close in rankings from year to year. Due to the way rankings are compiled, a slight change in one or more of the numerous variables can affect rankings from one year to the next, even when the universities themselves have not changed greatly.

Rankings impose a formulaic weighting of various university characteristics that will not be of value in the same way to all students. There is no such thing as a single "No. 1" school for everyone, no matter what a student chooses to study.

What matters most in choosing a school is the match between the particular interests, abilities, and ambitions of each student with the specific programs, approaches and opportunities offered by a particular school.

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**Charts in Chapter 12**

12.5 National Research Council (NRC) Graduate Program Assessment Results, 2005-06.
12.9 Center for World University Rankings, 2012-14.

Chart updated since the July 2014 edition.
The U-M is one of the nation’s leading public universities, according to the U.S. News & World Report ranking methodology.


<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>2010</th>
<th>2011</th>
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<td></td>
<td>All</td>
<td>Public</td>
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</table>


The U.S. News & World Report (USN&WR) ranking system for national universities (that is, universities that offer a full range of undergraduate majors, as well as master's and Ph.D. programs, and emphasize faculty research) is based on indicators chosen by USN&WR to reflect the academic quality of each institution. The current indicators (and their contribution to the overall ranking) include: a survey of administrators at peer institutions (15%); a survey of counselors from top public high schools and colleges (7.5%); retention of students (22.5%); faculty resources (20%), comprised of class size, student-faculty ratio, average faculty pay, proportion of faculty who are full-time and hold the highest degree in their field; student selectivity (12.5%), based on SAT and ACT scores of enrolled students, rank in high school graduating classes, and the university’s acceptance rate; average spending per student on instruction, research and student services (10%); graduation rate performance (7.5%), which compares a predicted graduation rate to the actual rate; and alumni giving rate (5%). Additional detail on how these items are used to calculate the rankings can be found on the USN&WR web site or the annual rankings publication.

The U-M consistently ranks in the top five of public universities according USN&WR methodology. Michigan receives high marks for freshman retention, graduation rate, the percentage of freshmen in the top 10 percent of their high school graduating classes, and its academic reputation.

\(^1\) A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
Of the 128 U-M graduate programs evaluated by U.S. News & World Report, 100 are ranked in the top ten. Only three other universities\(^2\) have more top ten graduate programs than Michigan.


#### GRADUATE PROFESSIONAL PROGRAMS

<table>
<thead>
<tr>
<th>Business</th>
<th>Medicine</th>
<th>Law</th>
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</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>Primary Care-Overall 8</td>
<td>Overall 10</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>Family Medicine 6</td>
<td>Clinical Training 8</td>
</tr>
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<td>Executive M.B.A.</td>
<td>Geriatrics 4</td>
<td>International Law 9</td>
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<td>Internal Medicine 8</td>
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<td>Management</td>
<td>Women's Health 7</td>
<td>Overall 6</td>
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<td>Public Health</td>
<td>Nurse Practitioner - Adult 4</td>
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<tr>
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<td>Overall 4</td>
<td>Nurse Practitioner - Family 4</td>
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<td>Nursing-Midwifery 10</td>
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<td>Supply Chain/Logistics</td>
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#### GRADUATE PROGRAMS in Science, Engineering, Information, Education, Public Health, Public Policy

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<th>Engineering</th>
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<td>Overall 8</td>
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<td>Organic Chemistry 9</td>
<td>Curriculum/Instruction 5</td>
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<td>Civil Engineering</td>
<td>Geochemistry 5</td>
<td>Education Policy 6</td>
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<td>Geology 2</td>
<td>Educational Psychology 3</td>
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<td>Electrical Engineering</td>
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<td>Elem. Teacher Education 4</td>
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<td>Mathematics 9</td>
<td>Higher Education Admin. 2</td>
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<td>Industrial Engineering</td>
<td>Algebra/Number Theory 8</td>
<td>Secondary Teacher Education 2</td>
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<td>Public Policy/Public Health</td>
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<td>Applied Mathematics 10</td>
<td>Environ. Policy &amp; Mgmt. 3</td>
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<td>Discr. Math/Combinations 5</td>
<td>Health Policy &amp; Management 6</td>
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<td>Information Systems</td>
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U.S. News & World Report publishes rankings of more than 1,200 graduate programs offered by U.S. universities. Programs in business, education, engineering, law, and medicine are evaluated and scored each year based on surveys of administrators, academics and professionals as well as data that reflect the quality of a program’s faculty, students and research.

Rankings of programs in the sciences, social sciences, other health fields, the humanities and the arts are conducted periodically. New rankings were determined for 2014 in engineering, math and science. All other programs listed on this and the following page were ranked prior to 2014 and republished here and on the next page.

\(^2\) University of California-Berkeley (110), Harvard (104), Stanford (103).
### GRADUATE PROGRAMS in the Social Sciences and Humanities

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The University is a top-20 institution globally according to the Times Higher Education quantitative rankings.


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SOURCE: Times Higher Education.

Times Higher Education calculates two separate rankings based on two different methodologies. The World University Rankings (above) judges institutions on their research, teaching, knowledge transfer and international activity. The World Reputation Rankings (see chart 12.2.2) is based on the results of an international, invitation-only survey sent to tens of thousands of experienced academics from around the world.

The World University Rankings shown on this page employ 13 performance indicators in five groups: Teaching (worth 30% of the overall ranking score); Research (30%); Citations (30%); Industry income (2.5%); and International outlook (7.5%).

\(^3\) A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
The U-M ranks 15th in the world according to the most recent Times Higher Education rankings based on academic reputation.


<table>
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</table>

SOURCE: Times Higher Education.

The World Reputation Rankings (above) are based on subjective judgments collected from an invitation-only survey returned by experienced academics in 133 countries for the 2014 edition, distributed to reflect the demographics of world scholarship. The 2014 results are based on 10,536 responses. In its first four cycles, survey responses have been received from almost 58,000 academics.

The survey asks each respondent to name no more than 15 universities that he or she considers to be the “best.” The survey also poses a few other questions, such as, "Which university would you send your most talented graduates to for the best postgraduate supervision?" The rankings are assembled based on the frequency that each institution is included in response to the survey questions.

\(^4\) A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
Michigan regularly scores highly based on the QS methodology, which attributes 80 percent of the ranking to academic reputation, citation frequency of the faculty, and the student-faculty ratio.


<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>2010</th>
<th>2011</th>
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SOURCE: QS Intelligence Unit.

The QS World University Rankings® (also now published by U.S. News & World Report) evaluates more than 800 universities in the world, ranking the top 400. A school’s rank is based on an amalgamation of six indicators obtained through a global survey and data collected about each institution. The six components and the weight provided to the overall score are: Academic reputation based on the survey (40% or score); Employer reputation based on the survey (10%); Citations per faculty member according to the SciVerse Scopus database (20%); Student-Faculty ratio (20%); Proportion of international students (5%); and Proportion of international scholars and scientists on the faculty. U-M is the highest ranked U.S. public university, according to QS.

\(^5\) A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
The U-M consistently scores in the top 25 of universities worldwide and in the top 20 of U.S. universities according to the rankings published by Shanghai Jiao Tong University.


<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<td>90</td>
<td>90</td>
<td>84</td>
<td>85</td>
<td>101-150</td>
</tr>
<tr>
<td>University of Virginia</td>
<td>96</td>
<td>96</td>
<td>101-150</td>
<td>101-150</td>
<td>101-150</td>
</tr>
</tbody>
</table>

SOURCE: Center for World-Class Universities, Shanghai Jiao Tong University.

The Academic Ranking of World Universities (ARWU) is based on six numerical elements (listed with the percent weight of the element in parentheses): the number of alumni winning Nobel Prizes and Fields Medals (10%), number of faculty winning Nobel Prizes and Fields Medals (20%), number of highly cited researchers in 21 broad subject categories according to Thomson Scientific (20%), number of articles published in journals of Nature and Science over the most recent five-year period (20%), number of articles indexed in Science Citation Index-Expanded and Social Sciences Citation Index (20%), and per capita academic performance of an institution (10%), determined by adding the weighted scores of all of the other indicators and dividing the sum by the number of full-time equivalent academic staff. More than 1,000 universities are ranked by ARWU every year and the best 500 are published on the web.

The University of Michigan ranking reflects high scores on the elements that measure citations of articles by U-M faculty across all disciplines.

6 A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
A large proportion of University of Michigan graduate programs received high marks from the National Research Council assessment.

12.5 National Research Council (NRC) Graduate Program Assessment, U-M and Peers⁷, 2005-06.

<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>Number of Programs Ranked</th>
<th>Percent of Programs where best S (survey) Ranking was in Top half</th>
<th>Percent of Programs where best R (Direct) Ranking was in Top half</th>
<th>Percent of Programs where best R (Direct) Ranking was in Top quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Wisconsin</td>
<td>78</td>
<td>90%</td>
<td>77%</td>
<td>95%</td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>69</td>
<td>77%</td>
<td>51%</td>
<td>80%</td>
</tr>
<tr>
<td>MICHIGAN</td>
<td>65</td>
<td>98%</td>
<td>82%</td>
<td>100%</td>
</tr>
<tr>
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<td>69%</td>
<td>95%</td>
</tr>
<tr>
<td>University of California-Los Angeles</td>
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<td>93%</td>
<td>76%</td>
<td>93%</td>
</tr>
<tr>
<td>University of Washington</td>
<td>59</td>
<td>93%</td>
<td>76%</td>
<td>95%</td>
</tr>
<tr>
<td>University of Illinois</td>
<td>58</td>
<td>91%</td>
<td>62%</td>
<td>91%</td>
</tr>
<tr>
<td>Harvard University</td>
<td>52</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>University of California-Berkeley</td>
<td>52</td>
<td>100%</td>
<td>94%</td>
<td>100%</td>
</tr>
<tr>
<td>University of North Carolina</td>
<td>51</td>
<td>86%</td>
<td>67%</td>
<td>100%</td>
</tr>
<tr>
<td>Yale University</td>
<td>49</td>
<td>100%</td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td>Columbia University</td>
<td>47</td>
<td>94%</td>
<td>81%</td>
<td>96%</td>
</tr>
<tr>
<td>Stanford University</td>
<td>47</td>
<td>100%</td>
<td>94%</td>
<td>100%</td>
</tr>
<tr>
<td>Indiana University</td>
<td>44</td>
<td>80%</td>
<td>48%</td>
<td>91%</td>
</tr>
<tr>
<td>Average of All AAU Institutions</td>
<td>42</td>
<td>86%</td>
<td>61%</td>
<td>89%</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>41</td>
<td>100%</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>University of Virginia</td>
<td>38</td>
<td>76%</td>
<td>42%</td>
<td>95%</td>
</tr>
<tr>
<td>University of Chicago</td>
<td>37</td>
<td>95%</td>
<td>78%</td>
<td>95%</td>
</tr>
<tr>
<td>Princeton University</td>
<td>35</td>
<td>100%</td>
<td>91%</td>
<td>97%</td>
</tr>
<tr>
<td>Northwestern University</td>
<td>31</td>
<td>97%</td>
<td>84%</td>
<td>97%</td>
</tr>
</tbody>
</table>


The National Research Council’s Assessment of U.S. Research-Doctorate Programs was undertaken to provide universities with benchmarking data that they could use to improve program quality, and to provide prospective students and the public with information about the nation’s doctoral programs.

The data used for the assessment was collected from 5,004 doctoral programs at 212 universities for the academic year 2005-2006. The data include characteristics of the faculty, such as their publications, citations, grants, and diversity; characteristics of the students, such as their GRE scores, financial support, publications, and diversity; and characteristics of the programs, such as number of Ph.D. degrees granted over five years, time to degree completion, percentage of students who complete graduate programs, and placement of students after graduation.

The methodology to arrive at a program’s rank is complex and elicited criticism from the higher education community when first made public. Following revisions to the original 2010 report, a final version was released in 2011.

The S-ranking is based on a national survey of faculty members who were asked to weigh programs on measures such as number of faculty, number of publications, citations, and other quantifiable measures.

Using another approach, the R-ranking is based on asking randomly selected faculty members in each discipline to rate programs from a sample provided. A regression analysis of these ratings provided different program rankings.

All of the programs at each school were counted as “in” or “out” of the top half or the top quartile of the rankings. The percent of each school’s programs to satisfy these two indicators is reported in the table. Furthermore, when the percentage of programs was at least one standard deviation better than the average of all AAU institutions, the percentage is displayed in a green rectangle.

⁷ A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
The scope of U-M’s research program and high number of Ph.D. degree recipients contribute most to the University’s position in the *Washington Monthly* ranking, which focuses on universities’ contributions to society.


<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of California-Berkeley</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>University of California-Los Angeles</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Stanford University</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>University of Washington</td>
<td>16</td>
<td>23</td>
<td>8</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Harvard University</td>
<td>9</td>
<td>6</td>
<td>11</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>University of North Carolina</td>
<td>13</td>
<td>12</td>
<td>4</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td><strong>MICHIGAN</strong></td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>University of Wisconsin</td>
<td>23</td>
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<td>15</td>
<td>17</td>
</tr>
<tr>
<td>University of Illinois</td>
<td>27</td>
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<td>22</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>Princeton University</td>
<td>24</td>
<td>31</td>
<td>20</td>
<td>31</td>
<td>27</td>
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<tr>
<td>University of Minnesota</td>
<td>43</td>
<td>45</td>
<td>28</td>
<td>56</td>
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<tr>
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<td>38</td>
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<td>19</td>
<td>43</td>
<td>39</td>
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<tr>
<td>University of Pennsylvania</td>
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<td>27</td>
<td>21</td>
<td>41</td>
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<tr>
<td>Columbia University</td>
<td>67</td>
<td>26</td>
<td>36</td>
<td>32</td>
<td>51</td>
</tr>
<tr>
<td>University of Chicago</td>
<td>12</td>
<td>25</td>
<td>29</td>
<td>46</td>
<td>53</td>
</tr>
<tr>
<td>Yale University</td>
<td>33</td>
<td>39</td>
<td>41</td>
<td>54</td>
<td>57</td>
</tr>
<tr>
<td>University of Virginia</td>
<td>44</td>
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<tr>
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<td>75</td>
<td>58</td>
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<tr>
<td>Indiana University</td>
<td>128</td>
<td>108</td>
<td>84</td>
<td>127</td>
<td>124</td>
</tr>
</tbody>
</table>

**SOURCE:** Washington Monthly.

*Washington Monthly* rates schools based on their contributions to the public good in three broad categories: Social Mobility, Research, and Service, each providing one-third of a school’s score.

The Social Mobility component attempts to measure an institution’s success at recruiting and graduating low-income students. It looks at the percentage of students receiving Pell Grants and predicts the likelihood that these students will graduate based on SAT scores and graduation rates of past Pell Grant recipients.

The Research component attempts to measure the eventual contribution of a school’s graduates to cutting-edge scholarship by combining a school’s total research expenditures with the number of bachelor’s degree recipients who continue their education and earn Ph.D degrees.

The Service component weighs a school’s success at encouraging its students to give something back to the country. Service is based on factors such as the rate by which students and alumni serve in the Peace Corps, ROTC, and work study-funded community service projects, the rate of staff members involved in community service and the number of academic courses that incorporate a service feature.

---

8 A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
Michigan ranks highly in the estimation of recruiters contacted by the *Wall Street Journal.*


<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>Rank or Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Illinois</td>
<td>3</td>
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<tr>
<td><strong>MICHIGAN</strong></td>
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<tr>
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<tr>
<td>University of California-Berkeley</td>
<td>15</td>
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<tr>
<td>University of Wisconsin</td>
<td>16</td>
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<tr>
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<tr>
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<tr>
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</tr>
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<td>46+</td>
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<tr>
<td>University of Chicago</td>
<td>46+</td>
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<tr>
<td>Princeton University</td>
<td>--</td>
</tr>
<tr>
<td>University of Washington</td>
<td>--</td>
</tr>
<tr>
<td><strong>Yale University</strong></td>
<td>--</td>
</tr>
</tbody>
</table>

*SOURCE: Wall Street Journal.*

The *Wall Street Journal* surveyed recruiters of major corporations in 2010, asking them to rate universities according to the quality of their graduates. In reporting the survey results, WSJ wrote: “State universities have become the favorite of companies recruiting new hires because their big student populations and focus on teaching practical skills gives the companies more bang for their recruiting buck.”

---

9 A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
Michigan performs well according to the “return on investment” metrics that are the focus of *Forbes’ America’s Top Colleges* list.


<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
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<td>6</td>
<td>5</td>
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<td>2</td>
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<td>45</td>
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</tr>
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<td>93</td>
<td>57</td>
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<td>45</td>
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</tr>
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<tr>
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<td>306</td>
<td>258</td>
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<td>108</td>
</tr>
</tbody>
</table>

**SOURCE:** *Forbes*.

America’s Top Colleges is a ranking of 650 colleges and universities that *Forbes* and the Washington, D.C.-based Center for College Affordability and Productivity (CCAP) have produced since 2008. The distinction that *Forbes* likes to make about this list is that it focuses on how well colleges and universities succeed at yielding successful graduates. Put bluntly, America’s Top Colleges attempts to rank institutions by the return on investment of time and money to attend a school.

The components of the rankings can vary somewhat from year-to-year. The breakdown described here applies only to the 2014 rankings, which includes the satisfaction expressed by students about their educational experience (25% of the ranking score), the four-year graduation rate (7.5%), career success by the school’s graduates (32.5%), student debt accrued and loan default rates (25%), and academic success of students, such as through earning prestigious scholarships and fellowships (10%).

\(^{10}\) A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
The U-M ranks in the top third of a recently devised international list of leading universities is based on several measures of faculty and alumni achievements.

### 12.9 Center for World University Rankings, U-M and Peers

<table>
<thead>
<tr>
<th>University (Privates in italics)</th>
<th>2012</th>
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<th>2014</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>1</td>
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<tr>
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<td>2</td>
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</tr>
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</tr>
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<td>8</td>
</tr>
<tr>
<td>Princeton University</td>
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<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Yale University</td>
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</tr>
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<td>Cornell University</td>
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</tr>
<tr>
<td>Indiana University</td>
<td>-</td>
<td>85</td>
<td>113</td>
</tr>
</tbody>
</table>

SOURCE: Center for World University Rankings.

The Center for World University Rankings (CWUR) uses a methodology that it believes is resistant to manipulation on the part of the universities being evaluated. CWUR avoids including any opinion surveys, relying on data about faculty prestige and alumni accomplishments, in addition to several research quality indicators.

The faculty quality factor is based on a count of prestigious awards received by an institution’s faculty members, from Nobel Prizes to the many other less well-known, but still significant international awards (e.g. Draper Prize, Kyoto Prize, Fields Medal).

Alumni accomplishment is measured in two ways: by counting the number of an institution’s alumni who are CEOs of firms on the Forbes Global 2000 list, and the number of alumni (weighted for the institution’s overall enrollment) who have received any of the same prizes considered for the faculty quality factor.

Research quality is calculated for each institution using several measures related to publication and discovery: the number of articles in reputable journals, the number of citations appearing in the literature, and the number of patents filed.

All of these factors are aggregated and a score for each institution determined, which yields a ranked order of the world’s top 100 universities.

11 A list of the “official” peers used for comparison on this page is found in Appendix A. Private universities are in italics.
Appendices

Appendix A: Peer Groups
Appendix B: Notes on Charts
Appendix C: U-M Graduate Academic Programs Grouped by Broad Disciplinary Categories
Appendix D: Graduate Academic and Professional Degree Programs at the University of Michigan
Appendix E: Glossary
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Chart updated since the July 2014 edition.
Appendix A: Peer Groups

The University of Michigan uses several groups of similar institutions of higher education for purposes of comparison. Here are descriptions and member lists of three peer groups referenced in the Michigan Almanac. Private institutions are shown in italics.

1) Official Peers (list developed by U-M officials)

- Columbia University in the City of New York
- Cornell University
- Harvard University
- Indiana University-Bloomington
- Northwestern University
- Princeton University
- Stanford University
- University of California-Berkeley
- University of California-Los Angeles
- University of Chicago
- University of Illinois at Urbana-Champaign
- University of Minnesota-Twin Cities
- University of North Carolina at Chapel Hill
- University of Pennsylvania
- University of Virginia-Main Campus
- University of Washington-Seattle Campus
- University of Wisconsin-Madison
- Yale University

2) Association of American Universities (AAU) is a nonprofit association of the leading public and private research universities in the U.S. and Canada. The Association of American Universities Data Exchange (AAUDE), a constituent group of the AAU, is comprised of the institutional research officers from each of these universities.

- Boston University (new in 2012)
- Brandeis University
- Brown University
- California Institute of Technology
- Carnegie Mellon University
- Case Western Reserve University
- Columbia University in the City of New York
- Cornell University
- Duke University
- Emory University
- Georgia Institute of Technology-Main Campus
- Harvard University
- Indiana University-Bloomington
- Iowa State University
- Johns Hopkins University
- Massachusetts Institute of Technology
- Michigan State University
- New York University
- Northwestern University
- Ohio State University-Main Campus
- Pennsylvania State University
- Princeton University
- Purdue University-Main Campus
- Rice University
- Rutgers University-New Brunswick
- Stanford University
- Stony Brook University
- Texas A & M University
- Tulane University of Louisiana
- University at Buffalo
- University of Arizona
- University of California-Berkeley
- University of California-Davis
- University of California-Irvine
- University of California-Los Angeles
- University of California-San Diego
- University of California-Santa Barbara
- University of Chicago
- University of Colorado Boulder
- University of Florida
- University of Illinois at Urbana-Champaign
- University of Iowa
- University of Kansas
- University of Maryland-College Park
- University of Michigan-Ann Arbor
- University of Minnesota-Twin Cities
- University of Missouri-Columbia
- University of North Carolina at Chapel Hill
- University of Oregon
- University of Pennsylvania
- University of Pittsburgh-Pittsburgh Campus
- University of Rochester
- University of Southern California
- University of Texas at Austin
- University of Virginia-Main Campus
- University of Washington-Seattle Campus
- University of Wisconsin-Madison
- Vanderbilt University
- Washington University in St Louis
- Yale University

Canadian university AAU members (not included in comparison groups in this publication)

- McGill University
- University of Toronto

Non-AAU affiliates of AAUDE

- Syracuse University
- University of Nebraska-Lincoln
3) **Big Ten**, an athletic conference formed in 1896 by seven midwestern public and private universities. In fall 2014, the Big Ten adds University of Maryland and Rutgers University; data for these newest members is *not* included in this edition. (Northwestern University, in italics, is the only private institution in the Big Ten.)

- Indiana University
- Michigan State University
- *Northwestern University*
- Ohio State University
- Pennsylvania State University
- Purdue University
- Rutgers University (*starting Fall 2014*)
- University of Illinois
- University of Iowa
- University of Maryland (*starting Fall 2014*)
- University of Michigan
- University of Minnesota
- University of Nebraska
- University of Wisconsin
Appendix B: Notes on Charts

The time frame applied to individual charts varies based on differences in the distribution date of the current edition and the latest release date for the data needed to produce a chart.

Chapter 1 – Overview of the University

1.1 School/College Origins.
SOURCE: Bentley Historical Library web site.

1.2 Student Fall Enrollment, 1841-present.
SOURCE: Counts compiled from several sources. The Office of the Registrar has provided data for the most recent decade.

1.3 Composition of U-M Ann Arbor Campus Community.
SOURCE: Student enrollment from Report 102, Office of the Registrar. Faculty and staff counts based on November 1 HR snapshot.
The total faculty headcount as of November 2012 was 6,682, which does not include Research Fellows. The original January 2013 edition headline for this page incorrectly reported the total faculty headcount as “nearly 8,000”. This was corrected in the Jan. 2013 edition on March 7, 2013.

1.4.1 Operating Revenues for the Ann Arbor Campus (including the U-M Health System), Adjusted for Inflation.
SOURCE: Financial Operations, which provides a special report to remove data for the UM-Flint and UM-Dearborn campuses.

1.4.2 Operating Revenues for the Ann Arbor Campus (including the U-M Health System), by Percent.
SOURCE: Financial Operations, which provides a special report to remove data for the UM-Flint and UM-Dearborn campuses.

Chapter 2 - Undergraduate Students: Admissions and Enrollment

2.1 Applications, Admission-Offers and Enrollment for New Freshmen and Undergraduate Transfers.
SOURCE: Applications and admissions data are from the Office of Undergraduate Admissions Spring, Summer and Fall Terms Freshmen and New Transfer Flow reports. Enrollment data are from the Office of the Registrar Report 109 and the SA05 Third Week Count.

2.2.1 Selectivity Rates for New Freshmen and Undergraduate Transfers.
SOURCE: Applications and admissions data are from the Office of Undergraduate Admissions Spring, Summer and Fall Terms Freshmen and New Transfer Flow reports. Enrollment data are from the Office of the Registrar Report 109 and the SA05 Third Week Count.

2.2.2 Yield Rates for New Freshmen and Undergraduate Transfers.
SOURCE: Applications and admissions data are from the Office of Undergraduate Admissions Spring, Summer and Fall Terms Freshmen and New Transfer Flow reports. Enrollment data are from the Office of the Registrar Report 109 and the SA05 Third Week Count.

2.3.1 GPA and Standardized Test Scores of New U-M Freshmen.
SOURCE: Freshman Profile Reports, Office of Admissions.

2.3.2 SAT Critical Reading and Math Scores for New Freshmen at U-M and Peer Institutions.

2.3.3 SAT Critical Reading and Math Scores for New Freshmen at U-M and Big Ten Universities.
SOURCE: Institutional Characteristics Survey 2010-11, Integrated Postsecondary Education Data System (IPEDS). The University of Nebraska joined the Big Ten in 2011 and will be included in data from that year on. Freshman enrollment is based on IPEDS data for full-time, first-time degree/certificate-seeking undergraduate students.

2.3.4 Average College GPA of New Undergraduate Transfer Students and their Class Level at Entry.
SOURCE: Recruiting and Admissions data set, Office of Admissions; SA05 Third Week Count data set, Office of the Registrar.

2.4 First-Generation Undergraduate Freshmen at U-M and Selective Research/Doctoral Public and Private Institutions for Selected Years.
SOURCE: Admissions Report SA02 and Official Third Week Count SA05, U-M Data Warehouse. 2003-04 National Postsecondary Student Aid Study (NPSAS:04) and 2007-08 National Postsecondary Student Aid Study (NPSAS:08), National Center for Education Statistics, U.S. Department of Education.

2.5.1 Total Undergraduate Students and New Freshmen, by Headcount.
SOURCE: SA05 Third Week Count data set, Reports 102 and 109, Office of the Registrar.

2.5.2 Undergraduate Student Enrollment, by School and College.
SOURCE: SA05 Third Week Count data set, Report 102, Office of the Registrar.
2.6.1 Geographic Origin of Undergraduate Students, by Headcount and Percent.
Students are designated as international based on citizenship, not the address provided in the application for admission.

2.6.2 Geographic Origin of New Freshmen, U-M and Public Peer Institutions, by Percent.

2.6.3 U-M Undergraduate Student Fall Enrollment from the State of Michigan, by Region and County.

2.6.4 U-M Undergraduate Student Enrollment, by State.

Chapter 3 – Undergraduate Students: Affordability

3.1.1 Undergraduate Tuition and Required Fees, per Semester.
SOURCE: Office of the Registrar.
Tuition rates for 2012-13 were approved by the Board of Regents on June 20, 2013.
Upper Division students enrolled in the Computer Science program in the College of Literature, Science & the Arts pay the same tuition rate as students in the College of Engineering.

3.6.1 Family Income Distribution for New Freshmen and All Undergraduates, Adjusted for Inflation5, by In-State and Out-of-State Status.
SOURCE: U.S. Department of Education.
A new source of data for this chart was first used in this edition; the chart is now based on family income reported on the Free Application for Federal Student Aid (FAFSA).

Chapter 4 - Undergraduate Student Success

4.1 Graduation Rates for U-M And AAU Public and Private Universities for Freshman Cohorts Entering 1996-2003
SOURCE: Graduation Rate Surveys, Integrated Postsecondary Education Data System (IPEDS).
U-M data are from Office of the Registrar Degree Reports. Sixty-one public and private universities comprise the AAU membership (see Appendix I). Public university AAU members number 35, one of which is the University of Michigan. The public university averages in chart 4.1 include data for the other 34 AAU public university members. If data for any institution is not available, the average calculation is adjusted accordingly.

4.2 Proportion of U-M baccalaureate recipients who enrolled in a graduate or professional degree program within four years.
SOURCE: National Student Clearinghouse (NSC). These data are susceptible to undercount because not all U-M Schools and Colleges are rigorous about participating in the NSC survey.
No data are included for the School of Dentistry, which offers an undergraduate degree program in Dental Hygiene.

4.3.1 Responses of U-M Seniors to Survey Questions about Satisfaction with the University.
SOURCE: Data for the first four questions (A-D) are from the National Survey of Student Engagement (NSSE), known as UMAY at the University of Michigan. Questions A and B were on the survey as administered by all participating schools. Questions C and D were only on the survey as administered by Association of American University Data Exchange (AAUDE) institutions participating in that year’s data collection. Data for the fifth question (E) are from the University of Michigan Asks You (UMAY) undergraduate survey, http://umay.umich.edu/.

4.3.2 Responses of U-M Seniors to Survey Questions about Satisfaction with Academics, Course Availability, and Advising.
SOURCE: Data for the first four questions (A-D) are from the National Survey of Student Engagement (NSSE), known as UMAY at the University of Michigan.

Chapter 5 – Graduate Academic & Professional Degree Students

5.1.1 Graduate Academic and Professional Student Enrollment by Percent of Total Enrollment for the U-M and AAU Public and Private Universities.
SOURCE: Office of the Registrar and individual Registrars in each School/College. Degrees Granted by 2-digit CIP, Integrated Postsecondary Education Data System (IPEDS). [Totals for postgraduate medicine and visiting scholars have been removed from the data.]

5.1.2 Graduate Academic and Professional Student Enrollment as a Percent of Total Enrollment.
SOURCE: Office of the Registrar Annual reports: 1960-61 Table VII, 1966-67 through 1969-70 (Enrollment in Credit Programs by Residency, Class Level, and Unit: Fall, 1970), 1980 Table IX, Report 102 for 1983-2010. [Totals for postgraduate medicine and visiting scholars have been removed from the data.]
Chapter 6 – Faculty & Staff

6.2.1 Tenured/Tenure-Track Faculty, Headcount by Title.
SOURCE: Human Resource Data Warehouse HR02 Universe.
Figures represent counts as of November 1 and reflect end-of-day activity as of October 31 for the noted year and appointments with an active or leave status, with or without pay (dry appointments).

6.5.1 Headcount of Regular Staff.
SOURCE: Headcounts are based on Human Resources data on November 1 of each year.

6.5.2 Full-time Equivalent of Staff, All Funds and General Fund.

6.6 Age Distribution of Staff.
SOURCE: Regular staff counts are based Human Resources data for paid appointments as of November 1 of each year and include employees with a status of active or on leave with pay. These counts exclude staff members that also have a faculty appointment, even though the staff appointment may be the primary appointment.

Chapter 7 – Diversity
Throughout this chapter, the “Two or More URM” category label represents individuals who identified two or more ethnic backgrounds and at least one of the ethnicities was an Under-Represented Minority – African American, Hispanic American, Native American, or Hawaiian. The “Two or More non-URM” label covers other multi-racial/ethnic individuals who did not identify with Under-Represented Minority.

7.1.1 Race and Ethnicity Distribution of the Ann Arbor Campus Community. The “Two or More URM”, Two or More non-URM” and “Hawaiian” categories were put in use starting in 2010.
The “Multiracial” category label is only used for State of Michigan data, as U.S. Census data does not use the “Two or More URM/non-URM” categories.
The “Hispanic American” group for the State of Michigan includes individuals who selected “Other Race” during the U.S. Census survey, since the U.S. Census Bureau determined that 93 percent of these respondents could be classified as Hispanic Americans.
“Research Faculty/Fellows” includes Research Scientists and Research Faculty, Librarians, Archivists and Research Fellows.
“Other Academic” includes Adjunct and Visiting Faculty, Not-on-Track Faculty and Emeritus Faculty. “Staff” excludes graduate student instructors and research assistants; these individuals are reported as students.

7.1.2 Gender Distribution of the Ann Arbor Campus Community. “Research Faculty/Fellows” includes Research Scientists and Research Faculty, Librarians, Archivists and Research Fellows.
“Other Academic” includes Adjunct and Visiting Faculty, Not-on-Track Faculty and Emeritus Faculty. “Staff” excludes graduate student instructors and research assistants; these individuals are reported as students.

7.2.1 Race and Ethnicity Distribution of New Freshmen. The “Two or More URM/non-URM” categories were put into use in 2010, so no earlier years in the chart use this category.

7.3 U-M Freshmen by Family Income and Geographic Origin.
Data based on reports of family income on the Free Application for Federal Student Aid (FAFSA), a different source than used in previous editions.

7.4.1 through 7.4.7
The Under-Represented Minority group includes students who self-identify as African American, Hispanic American, Native American, Native Alaskan or Pacific Islander.

7.5.1 Race and Ethnicity Distribution of Graduate and Professional Students.
All years exclude a small number (18 or fewer) of not-candidate-for-degree (NCFD) guest students who have no entry for their discipline category.

7.5.2 Gender Distribution of Graduate and Professional Students.
All years exclude a small number (18 or fewer) of not-candidate-for-degree (NCFD) guest students who have no entry for their discipline category.

Chapter 8 – Teaching & Learning

8.1 Composition of Instructional Workforce by Full-time Equivalents (FTEs).
This chart does not include clinical and adjunct faculty (1,354 FTEs). While these individuals have roles in instruction, their participation is of a different kind than tenured/tenure-track faculty, lecturers and graduate students instructors.
Chapter 9 – Research & Technology Transfer

9.1.3 Direct Research Expenditures by Discipline, Adjusted for Inflation.
In 2011, the College of Literature, Sciences & the Arts adjusted the method it uses to apportion general fund-supported faculty effort for teaching, research and service. A portion of each faculty member’s effort is now explicitly included in direct research expenditures. The most noticeable effect of this change is the relatively large increase in the direct research expenditures in the Humanities and the Arts in 2011; faculty salaries attributed to research effort in Humanities-related LSA departments increased from $158,000 in FY2010 to $8,825,000 in FY2011 due to the change in practice.

Chapter 10 – Finances & Fundraising

10.1.1 Breakout General Fund Budget for the Ann Arbor campus.
Additional detail available from the Office of Budget and Planning.

Chapter 11 – Space & Sustainability

11.1 Total Facilities Space on the Ann Arbor Campus, by General Fund and all Other Funds.
SOURCE: U-M Annual Space Management Survey Reports. Space at the North Campus Research Complex has been removed from the campus totals.
Appendix C: U-M Graduate Academic Programs¹ Grouped by Broad Disciplinary Categories
(Rackham Divisions²)

Biological & Health Science / Life Sciences (Rackham Division 1)
• Agriculture
• Bioinformatics
• Biology (Cellular, Molecular, Developmental, Neural, Chemical, Evolutionary, etc.)
• Biomaterials
• Biostatistics
• Chemistry
• Ecology
• Environmental Health Science
• Epidemiological Science
• Genetic Counseling
• Health & Health Care Research
• Human Genetics
• Immunology
• Industrial Health/Industrial Ecology
• Kinesiology
• Landscape Architecture
• Microbiology & Immunology
• Natural Resources/Conservation
• Neuroscience
• Nursing
• Nutritional Science
• Oral Health Sciences (Endodontics, Orthodontics, Periodontics, Prosthodontics, etc.)
• Pathology
• Pharmaceutical Sciences
• Pharmacology
• Pharmacy
• Physiology
• Spatial Analysis
• Sustainable Systems
• Toxicology

Physical Sciences & Engineering (Rackham Division 2)
• Applied Mechanics
• Applied Physics
• Applied Statistics
• Astronomy/Astrophysics
• Atmospheric, Oceanic & Space Science
• Biophysics
• Chemistry
• Chemical Engineering
• Computer Science & Engineering
• Construction Engineering & Management
• Design Science
• Engineering (Aerospace, Bio/Biomedical, Chemical, Civil, Electrical, Environmental, Financial, Industrial & Operations, Mechanical, Nuclear, Marine, etc.)
• Geology
• Macromolecular Science
• Materials Science
• Mathematics
• Mineralogy
• Naval Architecture
• Radiological Sciences
• Nuclear Science
• Oceanography: Physical
• Physics
• Scientific Computing
• Science, Technology & Public Policy
• Space & Planetary Physics
• Statistics
• Sustainable Systems
• Transportation & Logistics

Social Sciences (Rackham Division 3)
• Anthropology
• Area Ethnic, Cultural, Gender and Group Studies
• Asian Studies
• Business Administration
• Cognitive Science/Neuroscience
• Communication Studies
• Culture And Cognition
• Economics
• Education/Higher Education
• Education & Psychology
• Educational Studies
• Health Behavior & Health Education
• Health Service Organization & Policy
• Health Services Research
• History
• Information & Library Studies
• Political Science
• Psychology
• Public Administration
• Public Policy
• Sociology
• Urban & Regional Planning

Humanities & the Arts (Rackham Division 4)
• American Culture
• Architecture
• Art
• English Language and Literature
• Foreign Languages and Literatures
• Classical Art & Archaeology
• Classical Studies
• Comparative Literature
• Creative Writing
• Dance
• Film Studies
• History Of Art
• Linguistics
• Medical & Biological Illustration
• Museum Studies
• Music (Composition, Education, Musicology, Performance, Theory, etc.)
• Philosophy
• Theatre
• Women's Studies

¹ Excludes U-M professional degree programs by the same or similar names.
² Rackham Divisions are disciplinary groupings established by the Horace H. Rackham School of Graduate Studies.
Appendix D: Graduate Academic and Professional Degree Programs at the University of Michigan

Graduate Academic Degree Programs
One or more U-M School or College offers the listed degrees.

- Master of Arts (A.M.)
- Master of Science (M.S.)
- Master of Science in Engineering (M.S.E.)
- Master of Fine Arts (M.F.A.)
- Master of Landscape Architecture (M.L.A.)
- Master of Public Policy (M.P.P.)
- Master of Public Administration (M.P.A.)
- Master of Urban and Regional Planning (M.U.P.)
- Doctor of Philosophy (Ph.D.)
- Doctor of Musical Arts (D.M.A.)

Graduate Professional Degree Programs

Taubman College of Architecture and Urban Planning (TAUP)
- Master of Architecture (M. Arch.)
- Master of Urban Design (M.U.D.)

Ross School of Business
- Master of Business Administration (M.B.A.)
- Master of Accounting (M.Acc.)
- Master of Supply Chain Management (M.S.C.M.)
- Master in Entrepreneurship (M.E.)

School of Dentistry
- Doctor of Dental Surgery (D.D.S.)

College of Engineering
- Master of Engineering (M. Eng.)
- Doctor of Engineering (D. Eng.)
  Concentration areas: Manufacturing, Engineering

Law School
- Juris Doctor (J.D.)
- Master of Comparative Law (M.C.L.)
- Master of Laws (L.L.M.)
- Doctor of the Science of Law (S.J.D.)

School of Information
- Master of Science in Information (M.S.I.)

School of Music, Theatre & Dance
- Master of Music (M.M.)
  Concentrations: Chamber Music; Church Music; Collaborative Piano; Composition; Conducting; Band/Wind Ensemble, Choral, Orchestral; Early Keyboard Instruments; Improvisation; Keyboard Instruments; Music Education; Music Education with Certification; Performance; Piano Pedagogy and Performance; Wind Instruments.
- Specialist in Music (Spec.M.)
  Concentrations: Church Music; Ethnomusicology; Music Education; Performance;

School of Nursing
- Doctor of Nursing Practice (D.N.P.)

College of Pharmacy
- Doctor of Pharmacy (Pharm.D.)

School of Public Health
- Master of Public Health (M.P.H.)
- Master of Health Services Administration (M.H.S.A.)
- Doctor of Public Health (D.P.H.)

School of Social Work
- Master of Social Work (M.S.W.)

Medical School
- Doctor of Medicine (M.D.)
- Master in Health Professions Education (M.H.P.E.)
Appendix E: Glossary

AAU: American Association of Universities, a nonprofit association of 59 U.S. and two Canadian preeminent public and private research universities.

ACT: A standardized test designed to measure high school achievement and aid in the college admissions process.

Auxiliary activities: Essentially self-supporting activities primarily intended to furnish services to students, faculty and staff; examples include parking services, health care services to the public, residential services to students, and the athletic program.

Common Application: An undergraduate college admission application that students may use to apply to any of 488 member colleges and universities in the United States and various other countries. Its mission is to encourage the use of “holistic admission,” a process that includes subjective factors gleaned from essays and recommendations alongside objective criteria such as class rank and standardized testing.

Constant Dollars: An adjustment made to financial values to account for the effects of inflation. Sometimes referred to as “real dollars”.

Cooperative Institutional Research Program (CIRP) Freshman Survey: An annual survey administered during orientation or registration to entering students. The survey covers a wide range of student characteristics, achievement and activities, educational and career plans and values, attitudes, beliefs and self-concept.

Cost of Attendance: Cost of attendance is the estimated full and reasonable cost of completing a full year as a full-time student and typically includes tuition and fees, books and supplies, room and board, personal costs and transportation. See Net Cost of Attendance.

Clinical faculty: At the University of Michigan, these non-tenure track instructional faculty appointments emphasize clinical/practice and teaching skill.

Current Dollars: The value of dollars in the year they were received or paid without any adjustment for inflation. Sometimes referred to as “actual dollars”.

Emeritus faculty: At the University of Michigan, regular and clinical instructional faculty, research professors, research scientists, librarians, curators, and archivists may, upon officially retiring from the University, be granted an emeritus or emerita title by the Board of Regents.

Expected Family Contribution (EFC): An estimate calculated according to a Federal formula of the amount that a student and his or her parents might be expected to contribute toward the costs of a college education. Once a student’s EFC has been determined, the amount of federal, state, and institutional need-based aid the student is eligible to receive is calculated using the following equation: Cost of Attendance (minus) Expected Family Contribution (minus) Other Financial Resources (private scholarships, etc.) (equals) Eligibility for Need-Based Aid.

FTE: Full-time equivalent. A unit used to indicate the workload of an employed person or calculate the number of students or faculty members in a comparable or standardized way across institutions.

First generation student: An undergraduate student whose parents have not previously attended college at any level.

GPA: Grade point average. An indicator of past academic success that is requested as part of a student’s application for admission.

General Fund: At the University of Michigan, the General Fund relies largely on student fees and state appropriations and pays for teaching, research, library services, student scholarships, fellowships, and maintenance and operation of physical properties, among other services.

Geographic origin: A student’s geographic origin is defined according to the address used in the application for admission. The geographic origin of a student is similar, but not identical, to residency status.

Graduate Student Instructor (GSI): They are graduate students who help teach classes. GSIs act in different capacities depending on the class setup and professor preference. They can lead discussion sections, lead lectures, hold extra office hours, or be available for student help and advice.

Graduate Student Research Assistant (GSRA): A Graduate Student Research Assistantship (GSRA) is an appointment which may be provided to a student in good standing in a University of Michigan graduate degree program who performs personal research (including thesis or dissertation preparation) or who assists others performing research that is relevant to his or her academic goals.

Graduate Student Staff Assistant (GSSA): The GSSA is a graduate student whose employment is a part of a degree requirement or is otherwise considered academically relevant. GSSAs perform administrative, counseling or educational duties other than those of a GSI.

Grant Aid: Financial aid provided to students that is typically based on need.
Grant, research: See research grant.

Indirect costs: Indirect costs are the real costs of University operations that are not readily assignable to a particular project. Officially known as Facilities and Administrative costs, these costs are determined by federal auditors under the guidelines of the Office of Management and Budget.

Indirect cost recovery: Payments for overhead costs received from a research sponsor.

In-state student: The informal designation of a student who pays the “resident” tuition rate. In broad terms, such students are permanent residents of the State of Michigan as demonstrated by the applicant’s parents and/or the applicant or the applicant’s spouse or partner holding permanent employment in the state. See www.ro.umich.edu/resreg.php for a full discussion.

Instructional faculty: Individuals at the University of Michigan involved in student instruction, excluding graduate student instructors. ‘Regular instructional faculty’ includes tenure track faculty, clinical instructional faculty, and lecturers. ‘Supplemental instructional faculty’ includes adjunct instructional faculty, adjunct clinical instructional faculty, and visiting instructional faculty.

National Postsecondary Student Aid Study (NPSAS): A comprehensive research dataset on financial aid provided by the federal government, the states, postsecondary institutions, employers, and private agencies, along with student demographic and enrollment data. Seences.ed.gov/surveys/npsas/.

National Survey of Student Engagement (NSSE): A higher education survey administered by the Center for Postsecondary Research in the Indiana University School of Education. NSSE annually collects information at hundreds of four-year colleges and universities about student participation in programs and activities that institutions provide for their learning and personal development. The results provide an estimate of how undergraduates spend their time and what they gain from attending college. See nsse.iub.edu.

Net Cost of Attendance: The net cost of attendance is defined as the sum of tuition and fees, room and board, books and supplies, and other expenses for a full time freshman minus the sum of need and merit-based grant aid (not including work-study programs or government subsidized loans). See Cost of Attendance.

Net Student Tuition/Fees: When used in the context of the University’s operating revenues, this is the determined by subtracting scholarship aid from the tuition and fees paid by students.

Out-of-state student: The informal designation of a student who pays the “non-resident” tuition rate. In broad terms, such students are not permanent residents of the State of Michigan as demonstrated by the applicant’s parents and/or the applicant or the applicant’s spouse or partner holding permanent employment in another state or country. See www.ro.umich.edu/resreg.php for a full discussion.

Residency status: Residency status determines whether a student pays “in-state” or “out-of-state” tuition. Residency status is similar, but not identical, to geographic origin.

SAT: A standardized test designed to measure high school achievement and aid in the college admissions process.

Scholarship Aid: Financial aid provided to students, typically based on merit. (In some instances, scholarships may also have a need-based component.)

Selectivity: The percentage of applicants offered admission.

STEM: An acronym for fields related to science, technology, engineering and mathematics.

Technology transfer: The set of activities aimed at turning university research discoveries into products or processes with economic value.

Tenured/tenure-track faculty: Instructional faculty members who have either received tenure or who intend to be evaluated for tenure in the future.

U-M Health System: This phrase refers collectively to the U-M Hospitals and Health Centers, Michigan Health Corporation, Medical School patient care-related activity and the Office of the Executive Vice President for Medical Affairs.

University of Michigan Asks You (UMAY): The name used at the U-M for its version of the Student Experience in the Research University (SERU) survey. The survey, designed to learn about undergraduate student experiences, is administered to all U-M undergraduates at the Ann Arbor campus. Other research institutions to their students administer similar surveys.

Yield: The percentage of admitted students who enroll.
Appendix F: Photography Captions and Credits

Cover: Student studying outside of Angell Hall.
Photographer: Scott Soderberg.

Page 2: Aerial of U-M Central Campus as the sun rises over the University of Michigan in August 2011.
Photographer: Scott Soderberg.

Page 8: A student studies in the stacks of the Hatcher Graduate Library.
Photographer: Austin Thomason.

Page 24: The study room in Michigan Union is filled with student cramming for exams.
Photographer: Scott Soderberg.

Page 39: U-M students Molly Livingston, Lizzy McDonald and Katy Tylus post a favorite memory on a chalkboard at the Senior Send Off in April 2012.
Photographer: Scott Soderberg.

Page 45: Sociology graduate student Jun Yang of Korea works in the Tanner Philosophy Library.
Photographer: Eric Bronson.

Page 73: Professor Charlie Doering conducts a lecture for his “Nonlinear Dynamics and Chaos” class.
Photographer: Charlie Doering.

Page 87: Students at Engineering Welcome Day.
Photographer: Martin Vloet.

Page 105: School of Education Dean Deborah Loewenberg Ball conducts a mathematics class in the Elementary Mathematics Laboratory, which allows teachers to observe her techniques.
Photographer: Joel S. Johnson.

Photographer: Martin Vloet.

Page 131: The Reflection pond fountain just outside Lurie Engineering Building.
Photographer: Eric Bronson.

Page 141: A student jogs to catch up to one of the new M Hybrid Bus as it passes in front of Michigan Union.
Photographer: Scott Soderberg.

Page 155: Students walk through the arch leading from South University street to the Diag.
Photographer: Daryl Marshke.

Page 169: Marching Band senior saxophonist Aubrie Marsh works on her precision marching at Elbel Field.
Photographer: Lon Horwedel.

Photographs by Michigan Photography.
photography.umich.edu
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