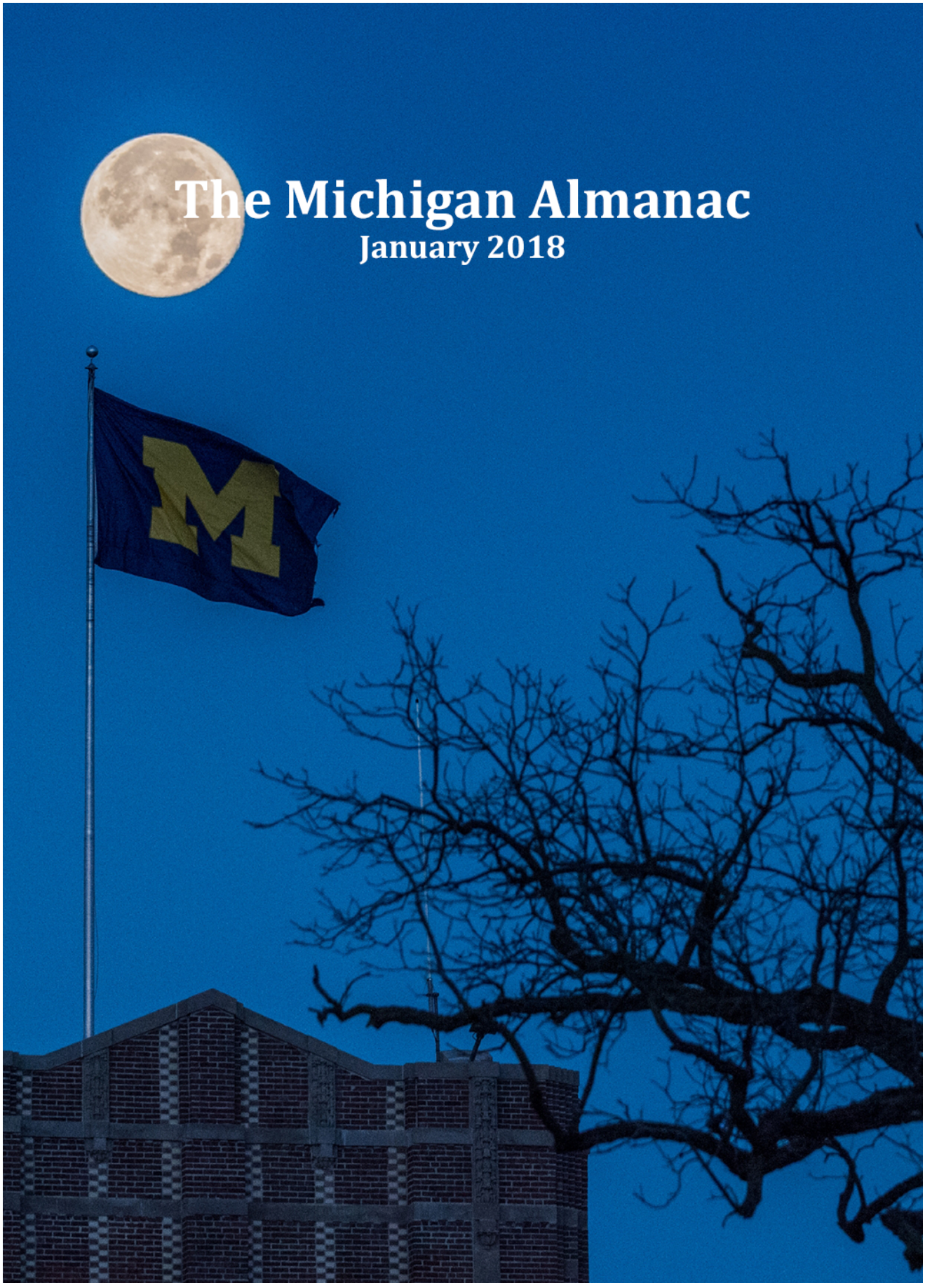
# The Michigan Almanac

January 2018



The Michigan Almanac is a publication of the U-M Office of Budget and Planning, created with valuable assistance by staff members from many offices and units across campus.

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# Table of Contents

✦ *Chart updated since the September 2017 edition.*

# Introduction

The Michigan Almanac provides a consolidated source of data and commentary as a window into the characteristics and operations 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 or 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 strives 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 rare instances. The University's Flint and Dearborn campuses are also excluded from this document.

When relevant, the Almanac compares the U-M 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 tenth edition of the Michigan Almanac was published in September 2017. Any chart that has been updated since the previous edition is marked with a star: ✦ .

Questions regarding the Almanac and its contents can be directed to michigan.almanac@umich.edu.


WELCOME TO MICHIGAN

# Chapter 1 Overview of the University

The University, 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 six 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 2017 enrollment of undergraduate, graduate and professional students was 46,002. The U-M provides campus housing to nearly 9,700 undergraduate students in 18 residence halls and apartment buildings.

Based on the Fall 2017 count, the faculty consists of 3,172 individuals who are tenured or on a tenure-track. Lecturers, clinical faculty, research professors, librarians, and archivists add 4,157 to the Ann Arbor campus academic staff, for a total of 7,329. The campus regular staff count is 15,090. Another 5,176 serve as supplemental staff (including 3,896 graduate student instructors and research assistants who are counted with students in chart 1.3). The FY2017 operating revenues from the state appropriation, tuition, research grants and contracts, gifts and other sources reached $3.89 billion for the Ann Arbor campus. The U-M Health System revenues added $4.2 billion for a grand total of nearly $8.2 billion. According to the latest national data, in FY2016 the U-M spent $1.45 billion on research – more than any other U.S. public university.

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

## 1.1 School/College Origins

| University of Michigan | Est. 1817 |
|---|---|
| School/College | First Dean Appointed |
| Medical School | 1850 |
| Law School | 1859 |
| College of Literature, Science & the Arts | 1875 |
| School of Dentistry | 1875 |
| College of Pharmacy | 1876 |
| College of Engineering | 1895 |
| Horace H. Rackham School of Graduate Studies | 1912 |
| School of Education | 1921 |
| Stephen M. Ross School of Business | 1924 |
| School of Music, Theatre & Dance | 1927 |
| School of Environment & Sustainability[1] | 1927 |
| Taubman College of Architecture & Urban Planning | 1931 |
| School of Nursing | 1941 |
| School of Public Health | 1941 |
| School of Social Work | 1951 |
| School of Information | 1969 |
| Penny W. Stamps School of Art & Design | 1974 |
| School of Kinesiology | 1984 |
| Gerald R. Ford School of Public Policy | 1995 |

### For More Information

Peckham, Howard H., *The Making of the University of Michigan, 1817-1992*, The University of Michigan Press, 1997.

Bentley Historical Library (bentley.umich.edu)

U-M Bicentennial (bicentennial.umich.edu)

*Chart updated since the September 2017 edition.*

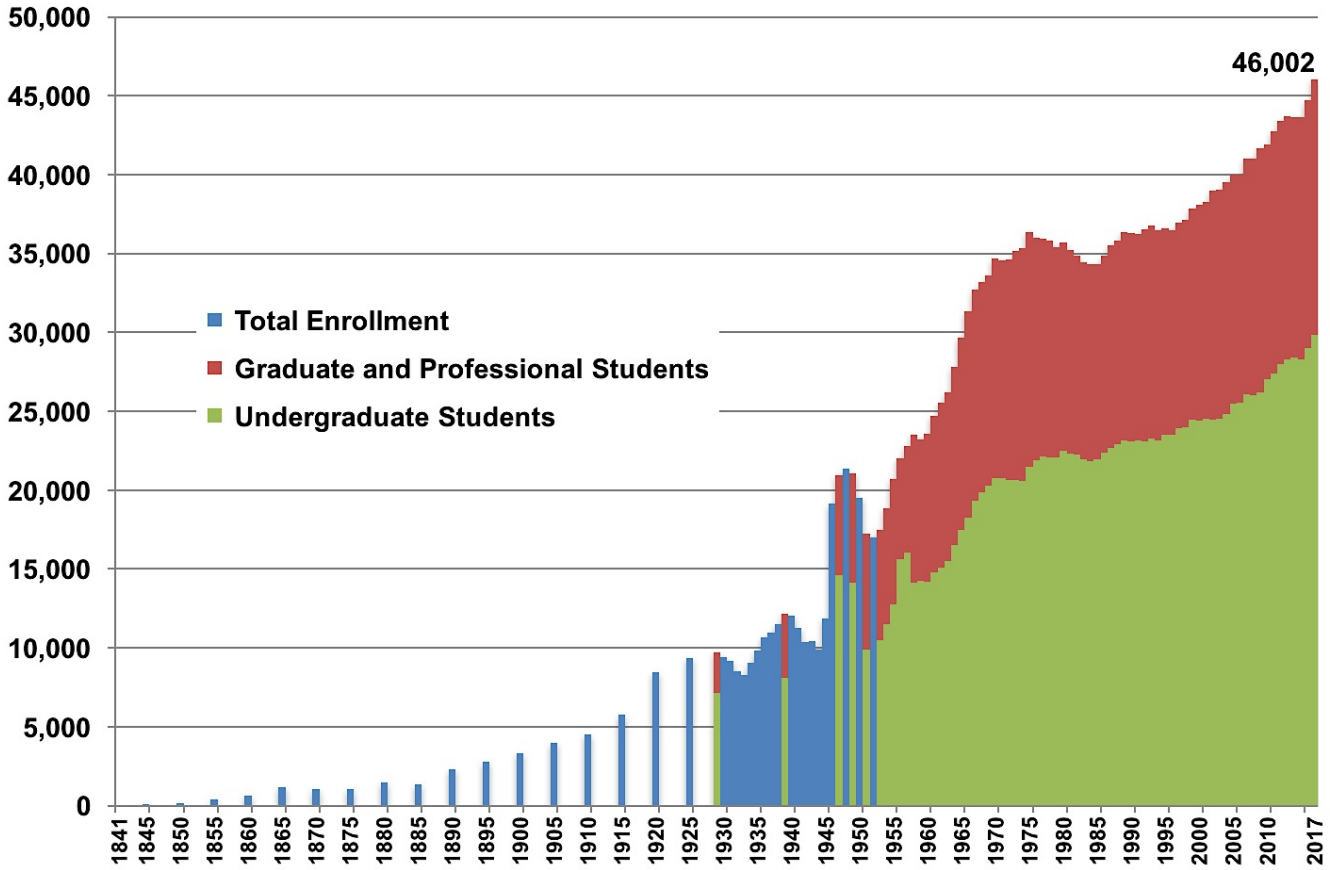
### Charts in Chapter 1



[1] New school name as of July 1, 2017. Previously called the School of Natural Resources & Environment.

## Since World War II ended, enrollment has more than doubled, from 19,176 in 1946 to 46,002 in 2017.

### 1.2.1 Student Enrollment, Fall 1841-2017.



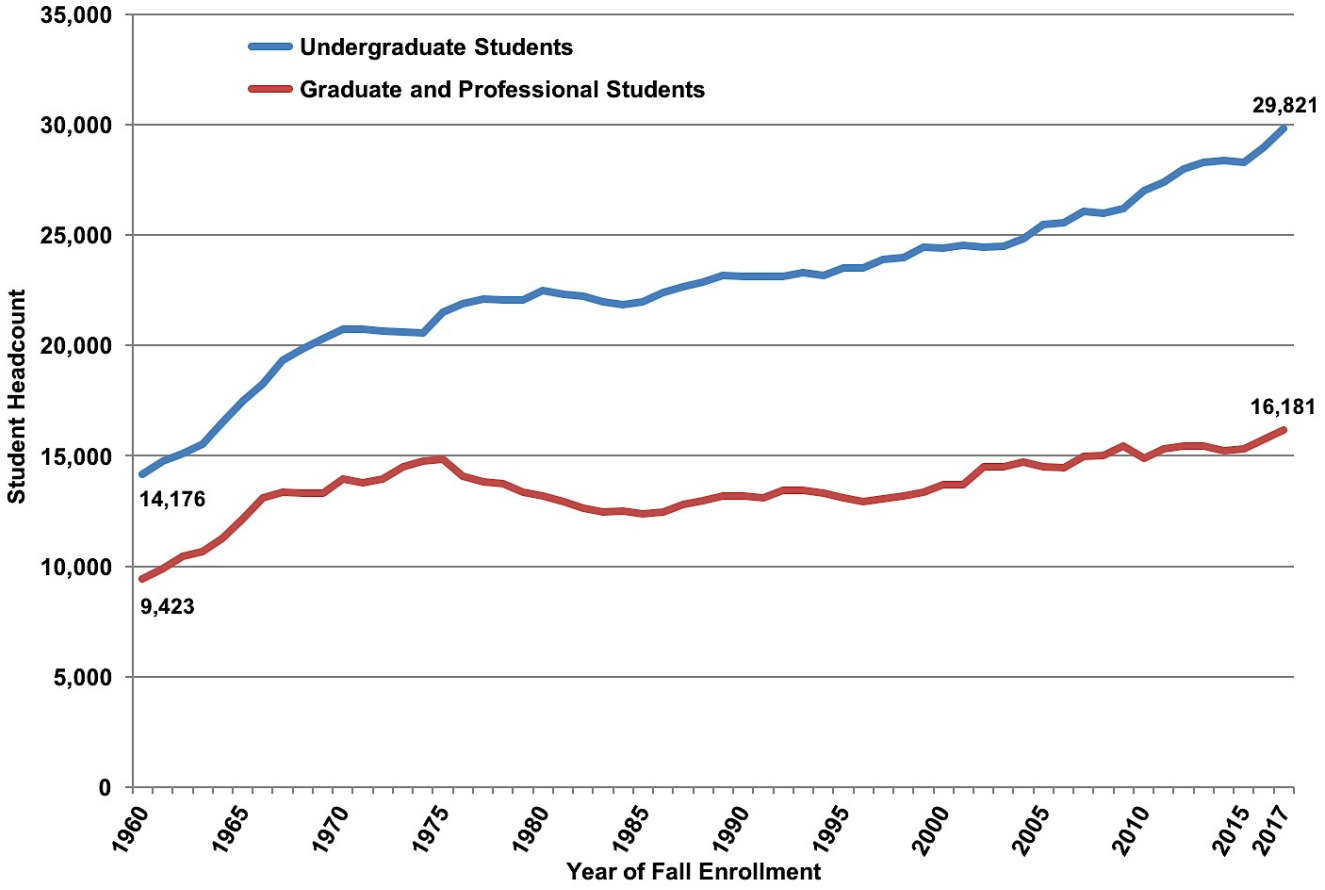

SOURCE: U-M Statistical Reference Book (1966); U-M Office of the Registrar.

The fall enrollment headcount is available starting in 1841 and continuing about every five years to 1929. The first class in 1841 consisted of six undergraduates. 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 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.**

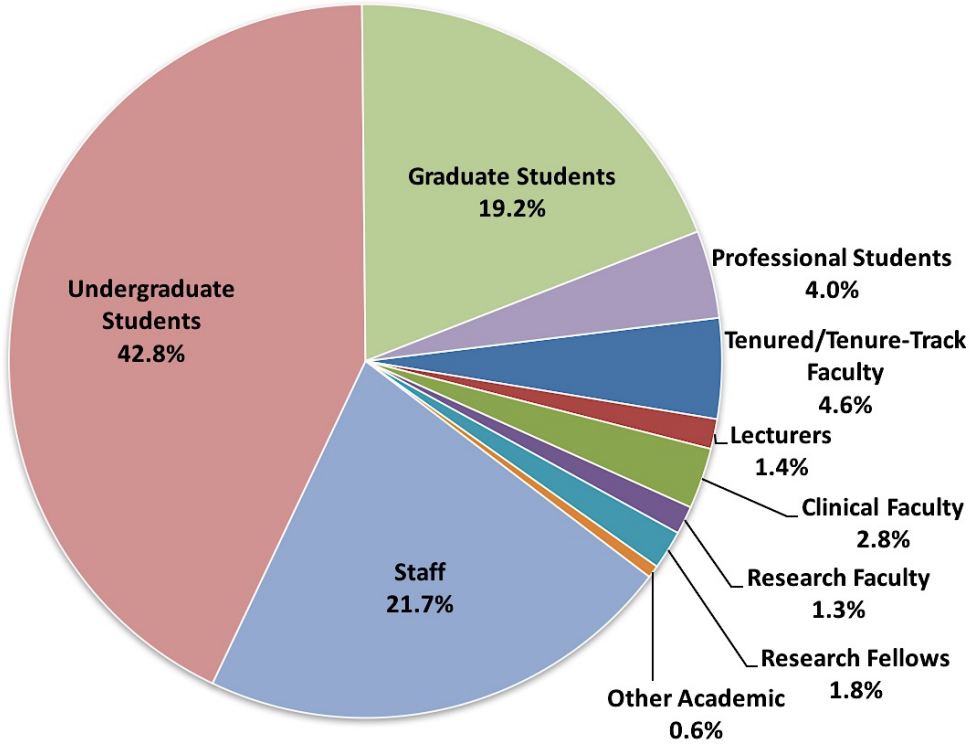
### 1.2.2 Student Enrollment by Level, Fall 1960-2017.




SOURCE: U-M Office of the Registrar.

## The University community includes 46,002 students and 6,934 faculty members.

### 1.3 Composition of U-M Ann Arbor Campus Community[1], Fall 2017.




SOURCE: U-M Office of the Registrar; U-M Human Resources Data Sets.

| | |
|---|---|
| Undergraduate Students | 29,821 |
| Graduate Students | 13,415 |
| Professional Students | 2,766 |
| Tenured/Tenure-Track Faculty | 3,172 |
| Lecturers | 945 |
| Clinical Faculty | 1,925 |
| Research Faculty | 891 |
| Other Academic | 398 |
| Research Fellows/Post-Doctoral Fellows | 1,231 |
| Staff | 15,139 |
| Ann Arbor Campus Total[1] | 69,703 |

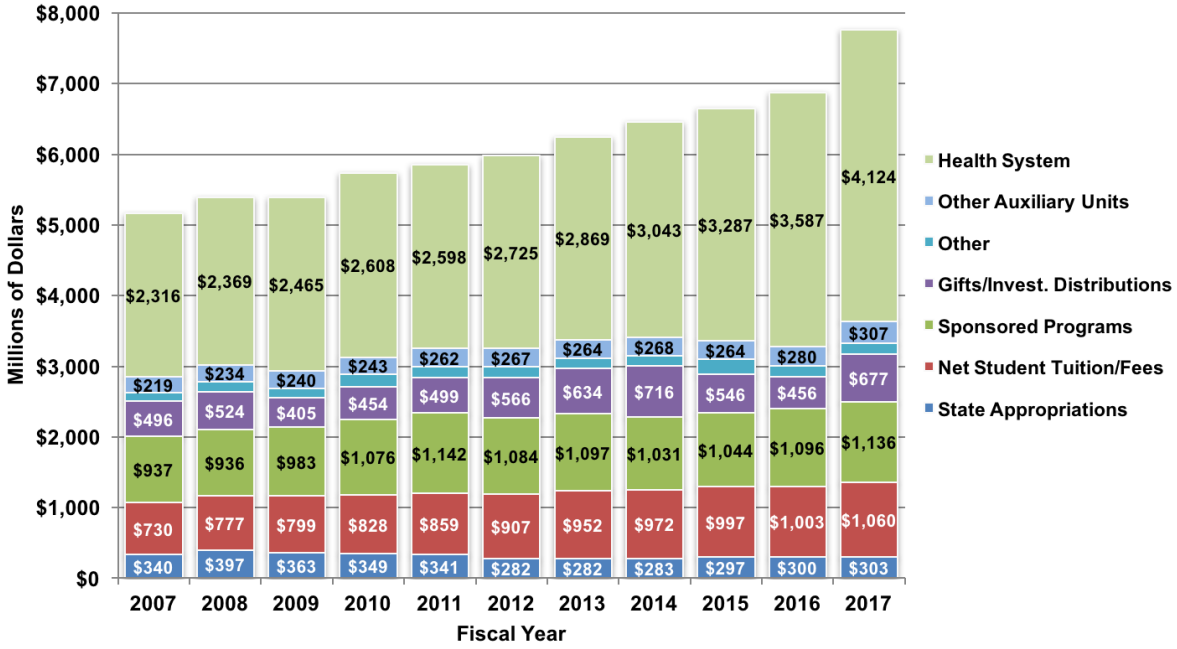
The total faculty count includes tenured & tenure-track faculty, lecturers, clinical faculty, research faculty and other academic (not-on-track faculty, adjunct and visiting faculty adjunct and visiting research faculty, and emeritus faculty). In this chart, the staff count includes regular staff, clinical interns and professional specialist, while excluding supplemental staff appointed as graduate student instructors, graduate student research assistants, and graduate student staff assistants, who are included in student counts.

The professional student count includes student enrolled in the MD, DDS, JD, PharmD and DNP programs. The graduate student count includes all other graduate students. See Appendix D for details.

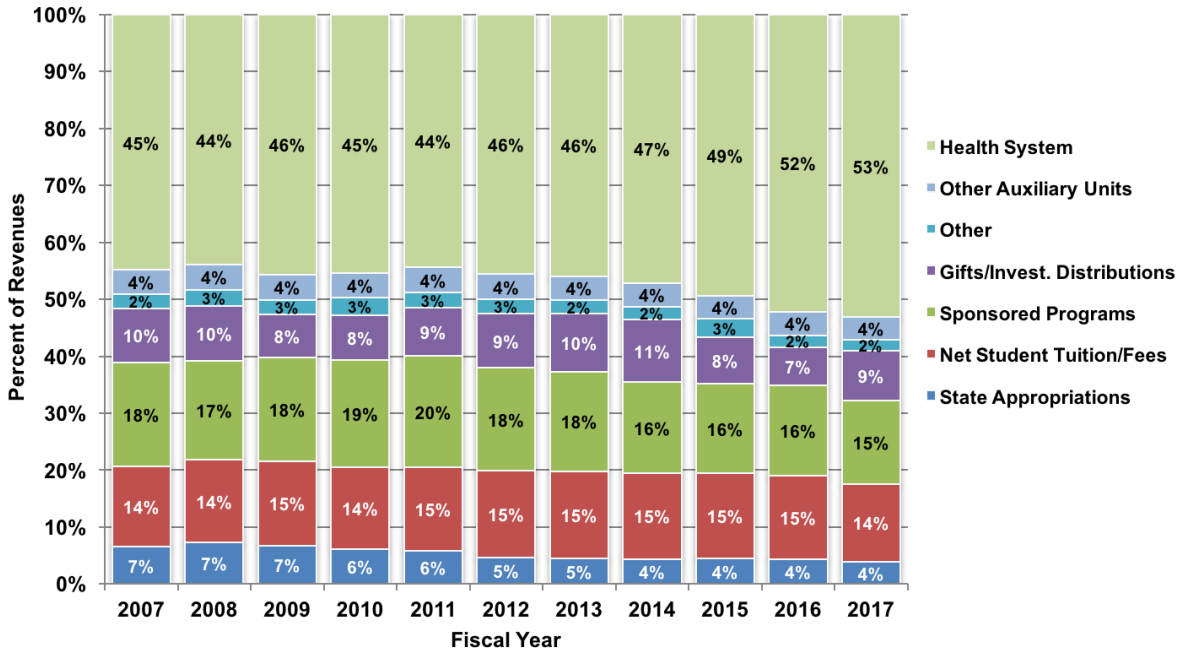
[1] Excludes the U-M Health System (see Appendix E for definition).

## Revenues (adjusted for inflation[2]) for the Ann Arbor campus and U-M Health System combined increased from $5.17 billion in FY2007 to $7.76 billion in FY2017. The state appropriation in inflation-adjusted dollars declined from $340 million in FY2007 to $303 million in FY2017.

### 1.4.1 Operating Revenues for the Ann Arbor Campus (including the U-M Health System), Adjusted for Inflation[2], FY 2007-2017.




### 1.4.2 Operating Revenues for the Ann Arbor Campus (including the U-M Health System), by Percent, FY 2007-2017.




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 2017 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 many years, the U-M has provided financial aid packages that meet full cost of attendance to admitted students from Michigan with need. Recently it added a new program – the Go Blue Guarantee – that pledges to provide the full cost of tuition to students admitted whose family income is less than $65,000 (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

This chapter details the application, admission and enrollment trends for new freshman and undergraduate transfer students, and describes U-M students according to a few indicators of academic preparation and to geographic origins. (See diversity data in Chapter 7.)

Student interest in the University continues to grow. Freshman application numbers have more than doubled since 2007, 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 number of newly enrolling freshman has increased by just under 1,000 over the past ten years, which has met or somewhat 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 has described 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.

The U-M offers more than 250 academic programs for undergraduates plus opportunities for international study, more than 1,200 student clubs, and 27 NCAA Division I teams. No other public university spends more on research, making it possible even for undergraduate students to have hands-on research experiences. The cosmopolitan campus community and college town atmosphere make it one of the most interesting places in the country.

The University actively pursues students from the state of Michigan, the nation and around the globe. In fall 2017, undergraduate students on campus came from 82 of 83 Michigan counties, all 50 states, and 92 countries. Fifty-four percent of currently enrolled domestic undergraduates are from the state of Michigan. 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 (admissions.umich.edu/)

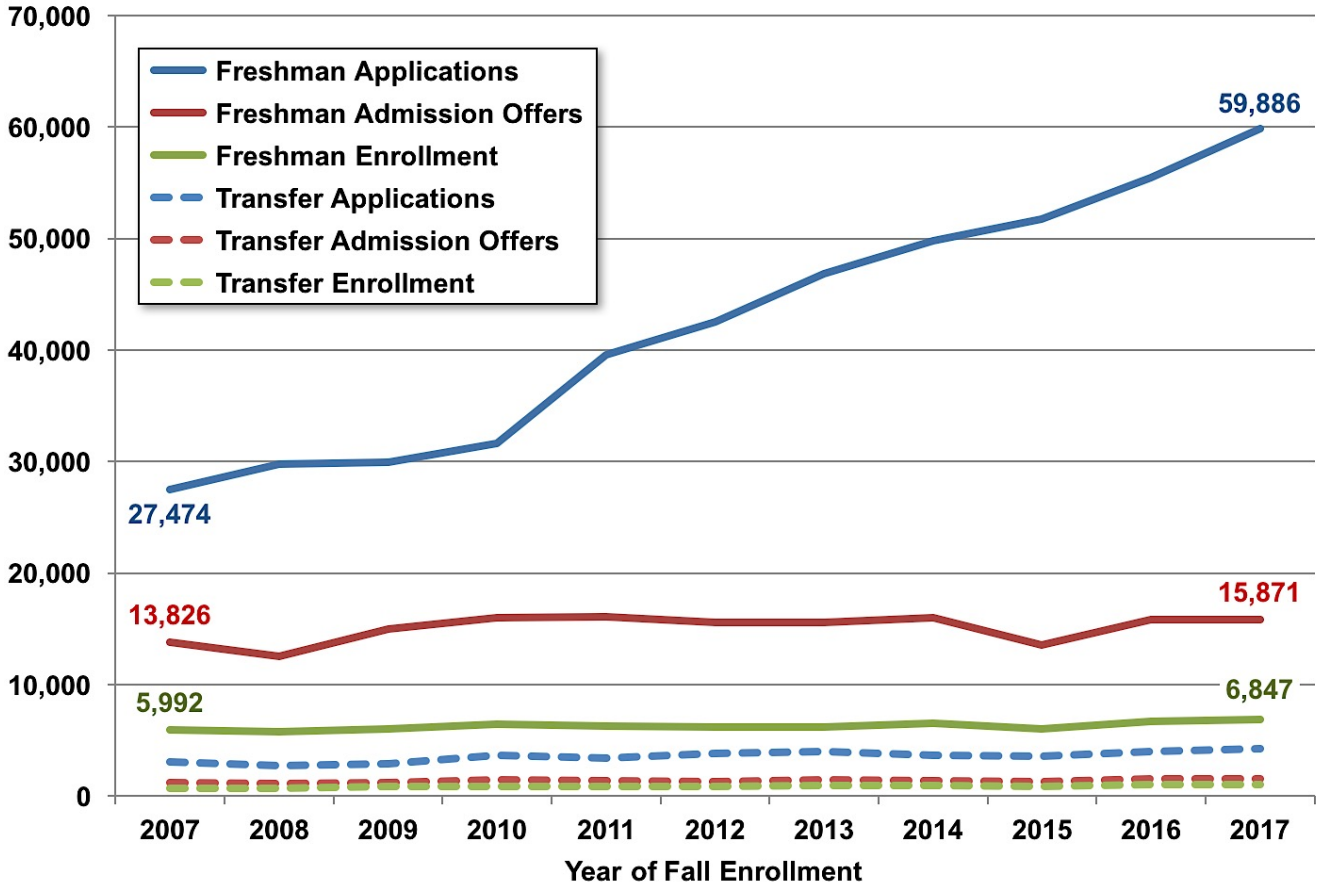
Enrollment and Degree Reports, Office of the Registrar (ro.umich.edu/enrollment/)

*Chart updated since the September 2017 edition.*

## Charts in Chapter 2

## U-M freshman applications have been increasing steadily since 2007, while enrollment has remained relatively constant.

**2.1 Applications, Admission Offers, and Enrollment for New Freshman and Undergraduate Transfer Students, Fall 2007-17.**




SOURCE: U-M Student Data Sets.

Over the last decade, freshman application totals for the University of Michigan have trended upward, influenced by several events.

Foremost was the resolution in 2003 of two lawsuits[1] 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."[2]

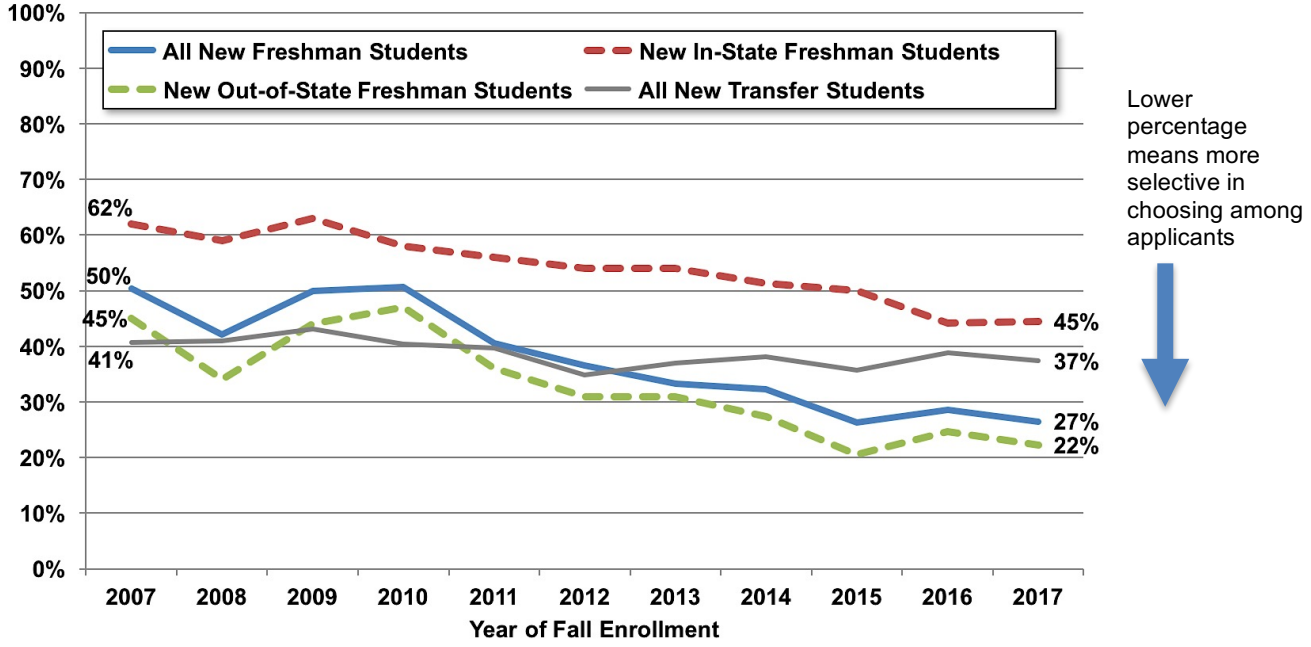
Following the Supreme Court decision, the University developed a new undergraduate application and revised its review procedures, beginning with applicants seeking admission for Fall 2004.

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. Starting in Fall 2011, applicants jumped and have continued to grow, 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.

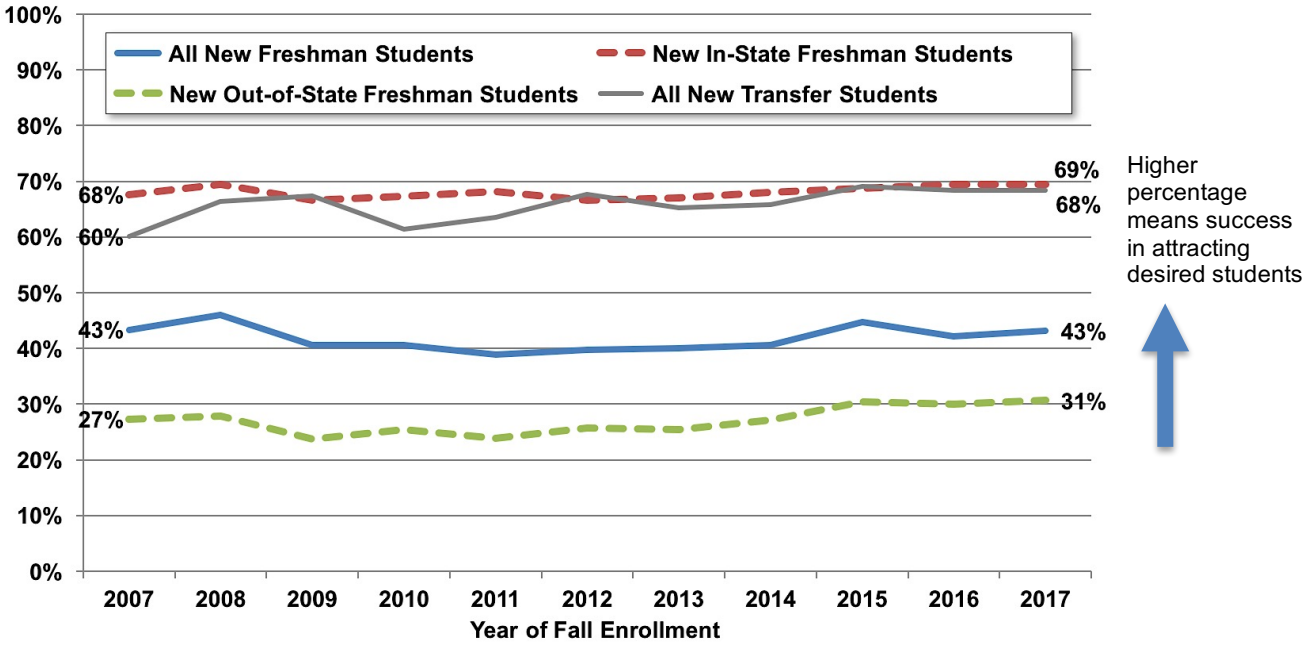
[1] Gratz et al. v. Bollinger, et al. filed on October 14, 1997, and Grutter v. Bollinger, et al. filed on December 3, 1997.
[2] Summary of Supreme Court Decisions in Admissions Cases, Jonathan Alger, U-M Assistant General Counsel, June 23, 2003, (diversity.umich.edu/admissions/overview/cases-summary.html)

## 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 2007-17.




### 2.2.2 Yield Rates for New Freshman and Undergraduate Transfer Students, Fall 2007-17.




SOURCE: U-M Student Data Sets.

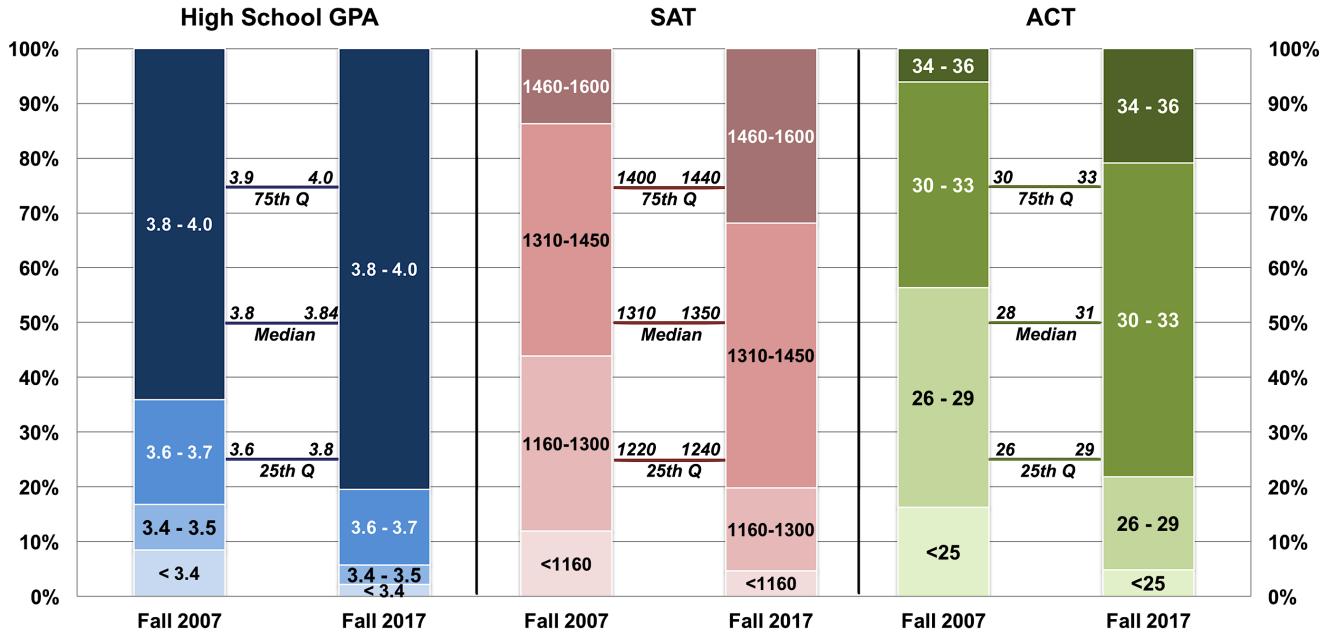
Selectivity is the ratio of admission offers to total applications (and one important indicator of the quality of students who ultimately attend the institution). Yield is the ratio of enrollment numbers to admission offers.

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, which is generally an indicator of student quality. In chart 2.2.2, a high percentage indicates the school is successful in convincing the sought-after students to enroll (instead of going to other schools). 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 2017 freshman class compared to their 2007 counterparts.

### 2.3.1 GPA[3] and Standardized Test Scores of New Freshman Students, Fall 2007 and Fall 2017.




SOURCE: Freshman Profile Reports, U-M Office of Admissions; Student Admissions dataset.

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 2007 and 2017 freshman classes.

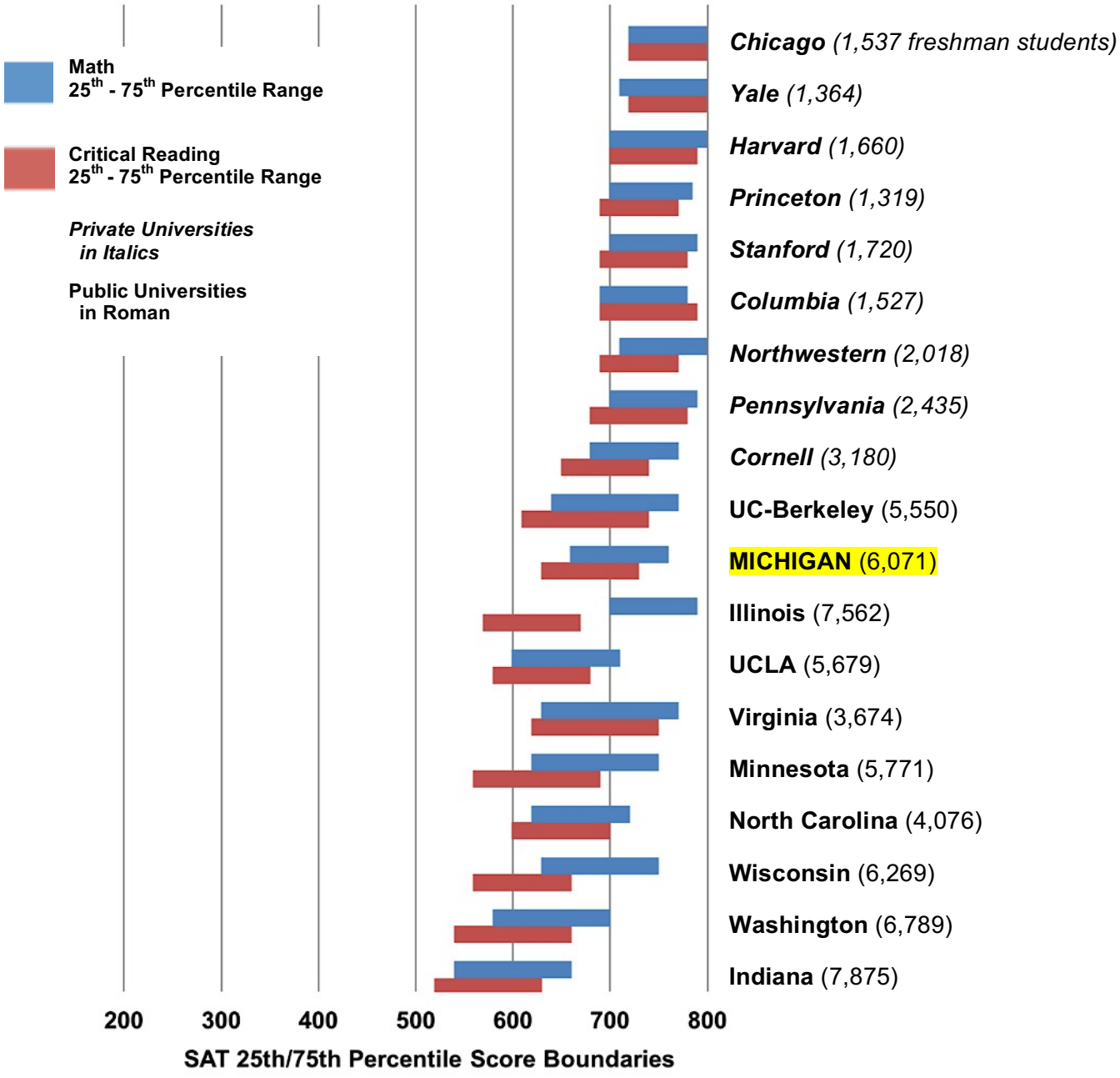
The University of Michigan calculates a GPA on a 4.0 scale from the official high school transcript after eliminating any weighting from the applicant's high school. In 2007, the GPA was calculated based on academic subjects only in grades 9 to 11. In 2017, the GPA was calculated for all subjects taken 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 2007 freshmen combine the Verbal and Math scores. For the Fall 2017 freshman students, the reported scores come from a new version of the SAT that combines those from the Read/Write and Math sections of the SAT, and which then converts the scores to be comparable to the 2007 scores.

[3] 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[4], Fall 2015.



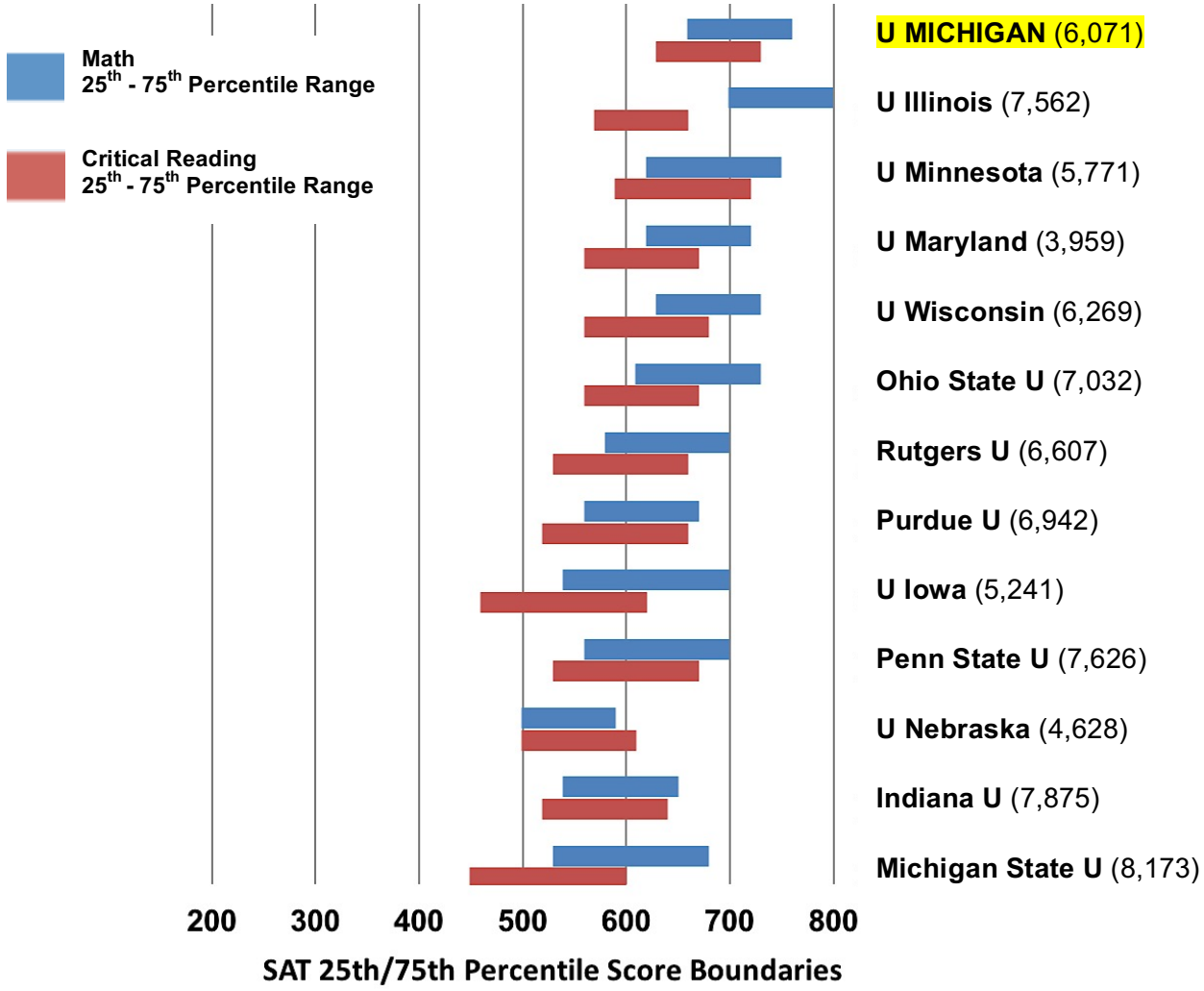

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

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 2015 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 2015 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.

[4] 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 2015.**

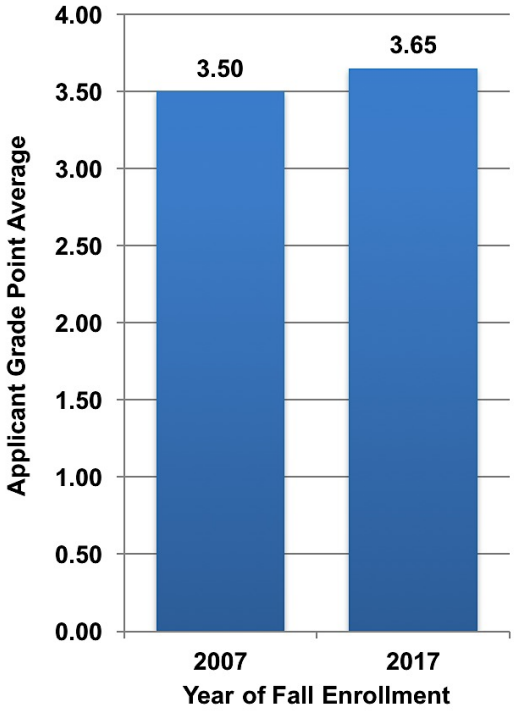



SOURCE: Integrated Postsecondary Education Data System (IPEDS).

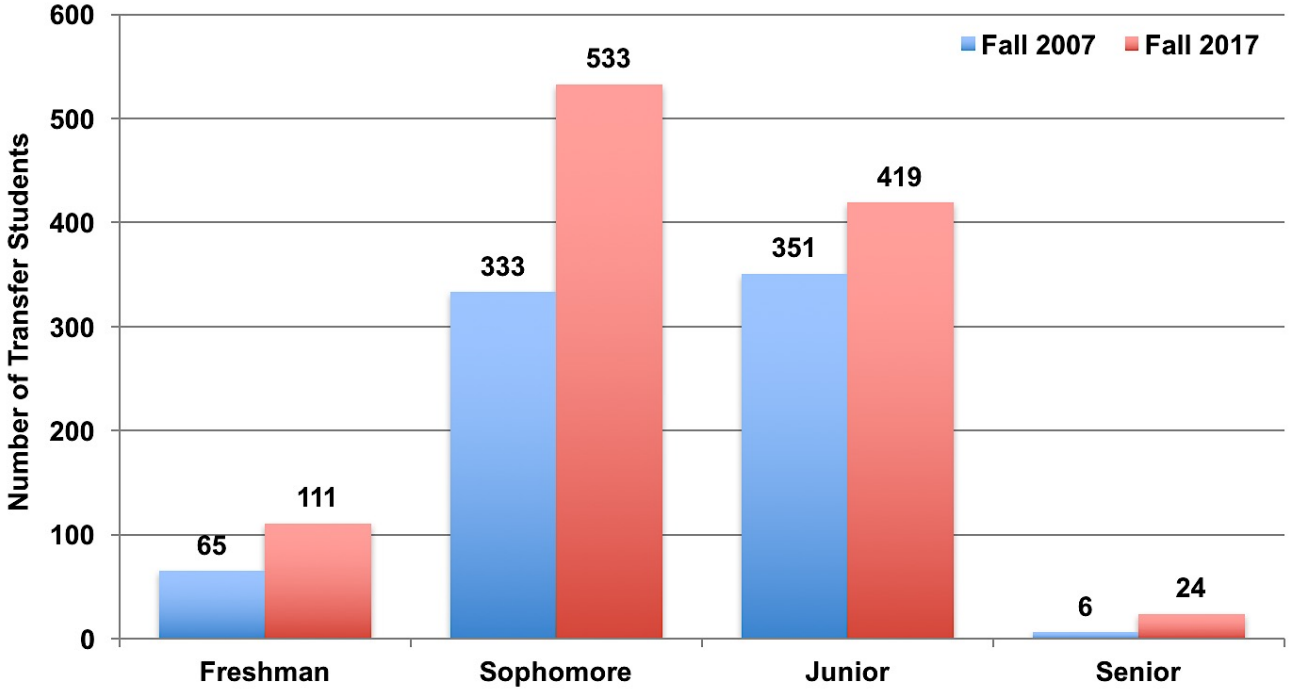
The school list is ordered by the sum of the 75th percentile SAT Math and Critical Reading scores for the institution's fall 2015 new full-time freshman students. Each institution's full-time new freshman enrollment for fall 2015 is in parentheses after the school name.

## 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[5], Fall 2007 and Fall 2017.




### 2.3.5 New Undergraduate Degree-Seeking Transfer Students by Class Level at Entry, Fall 2007 and Fall 2017.



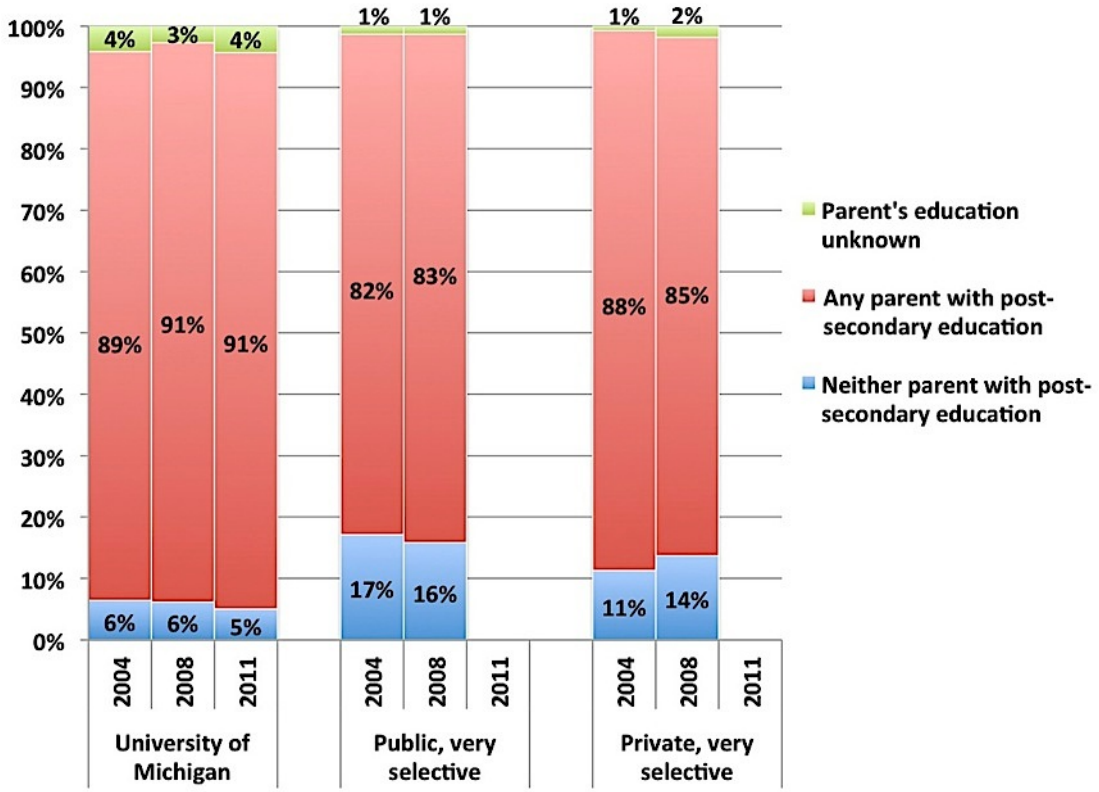

SOURCE: U-M Student Data Sets.

About 88 percent of new transfer students for Fall 2017 entered with sophomore or junior academic standing.

[5] A grade point average is 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.




SOURCE: U-M Student Data Sets, National Postsecondary Student Aid Study[6] (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.

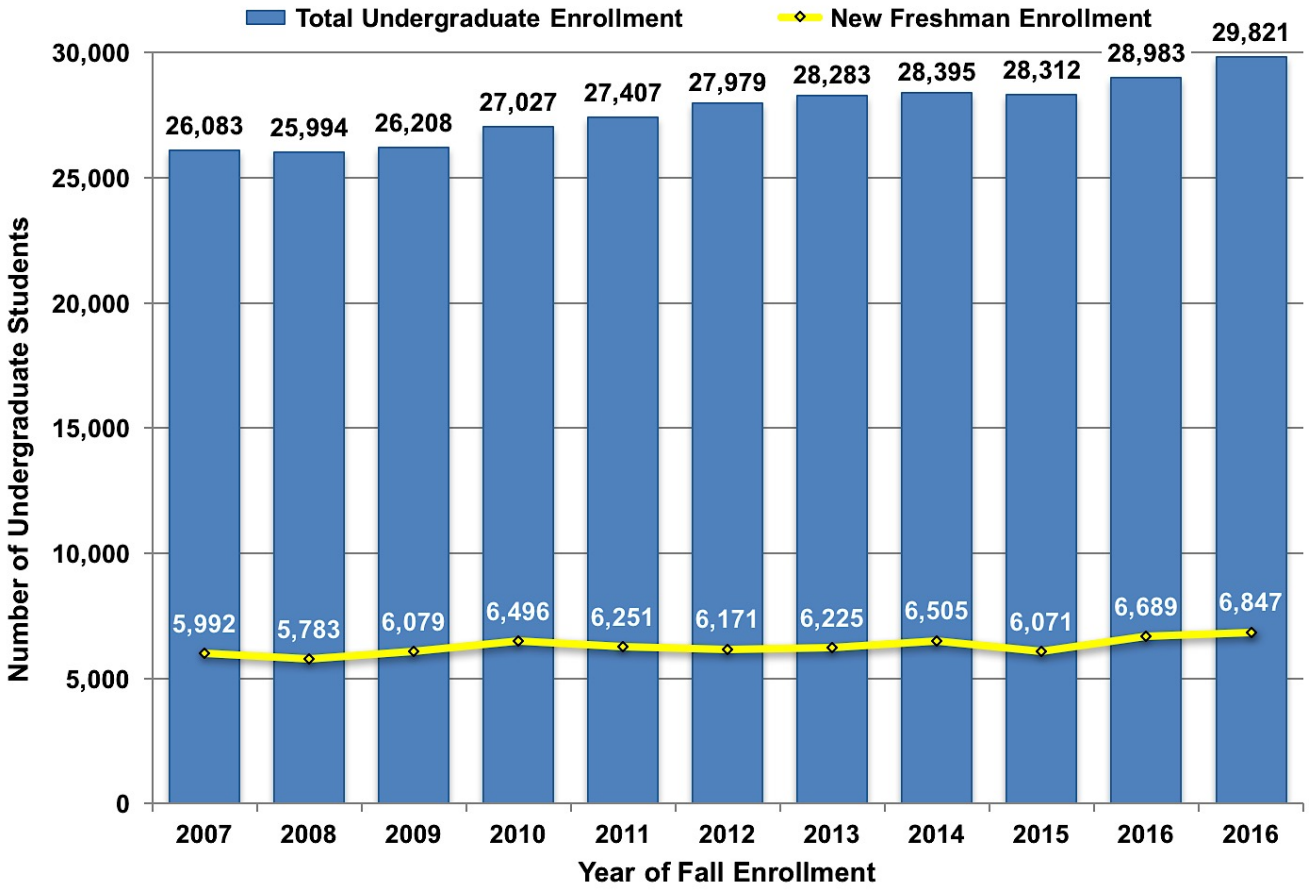
The University of Michigan has a relatively low proportion of first-generation undergraduate students compared to similar public and private universities.

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.

[6] 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 in 2017 is 14 percent higher than in 2007. The size of the 2017 freshman class is 14 percent higher than its 2007 counterpart.

### 2.5.1 Total Undergraduate and New Freshman Student Enrollment, Fall 2007-17.




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. Counts include full-time and part-time students.

Starting in Fall 2017, all students enrolled in the Pharm.D. program are listed as graduate-professional students. Prior to that students who newly enroll in the College of Pharmacy Pharm.D. program who did not hold a bachelor's degree upon enrollment were counted as undergraduate students; new Pharm. D. students with a bachelor's degree are counted as graduate-professional students. Number of Pharm.D. students included in fall undergraduate enrollment counts, by year: 2007: 59 | 2008: 49 | 2009: 42 | 2010: 40 | 2011: 39 | 2012: 23 | 2013: 13 | 2014: 9 | 2015: 0 | 2016: 19.

## Fifteen U-M Schools and Colleges administer undergraduate programs, which enrolled 29,821 students for Fall 2017.

### 2.5.2 Undergraduate Student Fall Enrollment Headcount by School and College, 2013-17.

| School/College | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Taubman College of Architecture & Urban Planning | 176 | 178 | 152 | 145 | 162 |
| Penny W. Stamps School of Art & Design | 588 | 538 | 540 | 535 | 540 |
| Stephen M. Ross School of Business | 1,427 | 1,510 | 1,595 | 1,733 | 2,330 |
| School of Dentistry (Dental Hygiene) | 91 | 86 | 102 | 111 | 110 |
| School of Education | 177 | 156 | 133 | 113 | 118 |
| College of Engineering | 5,950 | 6,024 | 6,097 | 6,231 | 6,442 |
| School of Information | - | 84 | 151 | 206 | 252 |
| School of Kinesiology | 883 | 925 | 924 | 947 | 973 |
| College of Literature, Science & the Arts | 17,372 | 17,307 | 16,969 | 17,216 | 17,075 |
| Medical School | - | - | 3 | 30 | 25 |
| School of Music, Theatre & Dance | 797 | 788 | 821 | 820 | 825 |
| School of Nursing | 662 | 649 | 670 | 706 | 672 |
| College of Pharmacy * | 24 | 14 | 9 | 33 | 41 |
| School of Public Health | - | - | - | - | 95 |
| Gerald R. Ford School of Public Policy | 125 | 126 | 139 | 114 | 150 |
| School of Art and Design / School of Music, Theatre and Dance Joint Program | 11 | 10 | 7 | 15 | 11 |
| *Grand Total, Undergraduate Students* | *28,283* | *28,395* | *28,312* | *28,983* | *29,821* |

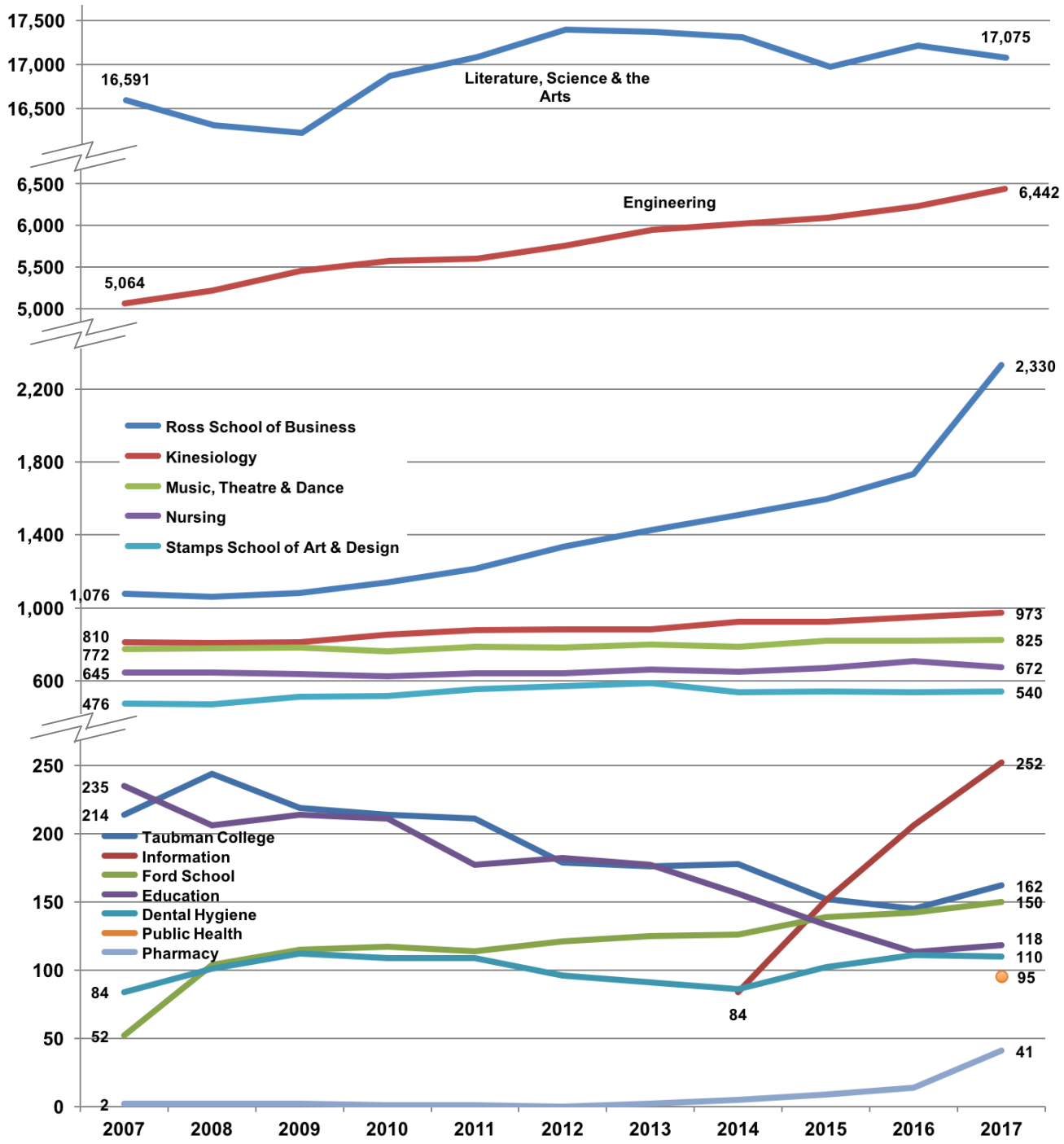
SOURCE: U-M Student Data Sets.

The School of Public Health started enrolling students in an undergraduate degree program in Fall 2017. The School of Information first enrolled students in a new undergraduate degree program in Fall 2014. The Medical School first enrolled students in a new undergraduate non-degree program in Fall 2015. The Stamps School of Art & Design and the School of Music, Theatre & Dance first enrolled students in a joint undergraduate degree program in Fall 2012.

* Prior to Fall Term 2017, students who newly enroll in the College of Pharmacy Pharm.D. program who did not hold a bachelor's degree upon enrollment were counted as undergraduate students, while new Pharm.D. students with a bachelor's degree are counted as graduate-professional students. Starting with Fall Term 2017, all students enrolled in the Pharm.D. program are counted as graduate-professional students. Number of Pharm.D. students included in undergraduate counts, by year:
2013: 13 | 2014: 9 | 2015: 0 | 2016: 19.

## Fifteen U-M Schools and Colleges administer undergraduate programs, which enrolled 29,821 students for Fall 2017.

### 2.5.3 Undergraduate Student Fall Enrollment 10-Year Trend by School and College, 2007-17.

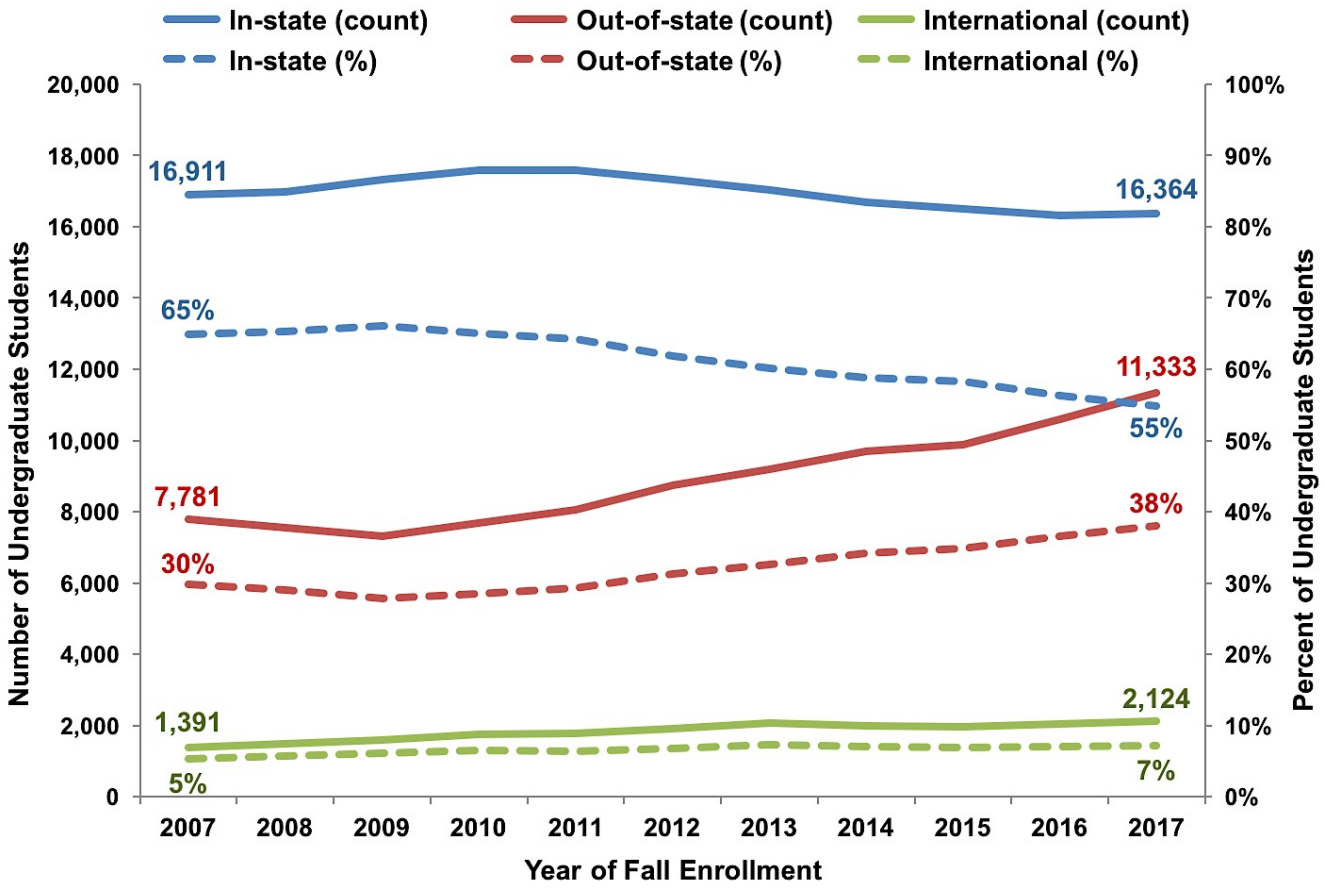



SOURCE: U-M Student Data Sets.

Enrollment counts of students in a few programs *are excluded* from this chart: students in the Medical School MedPrep non-degree program that started Fall 2015; students in the Stamps School of Art & Design/School of Music, Theatre & Dance joint undergraduate program that started Fall 2012; and students who started the Pharm.D. program without holding a bachelor's degree and were counted as undergraduate students prior to Fall 2017 instead of graduate-professional students.

## Less than 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 2007-17.




SOURCE: U-M Office of the Registrar.

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.

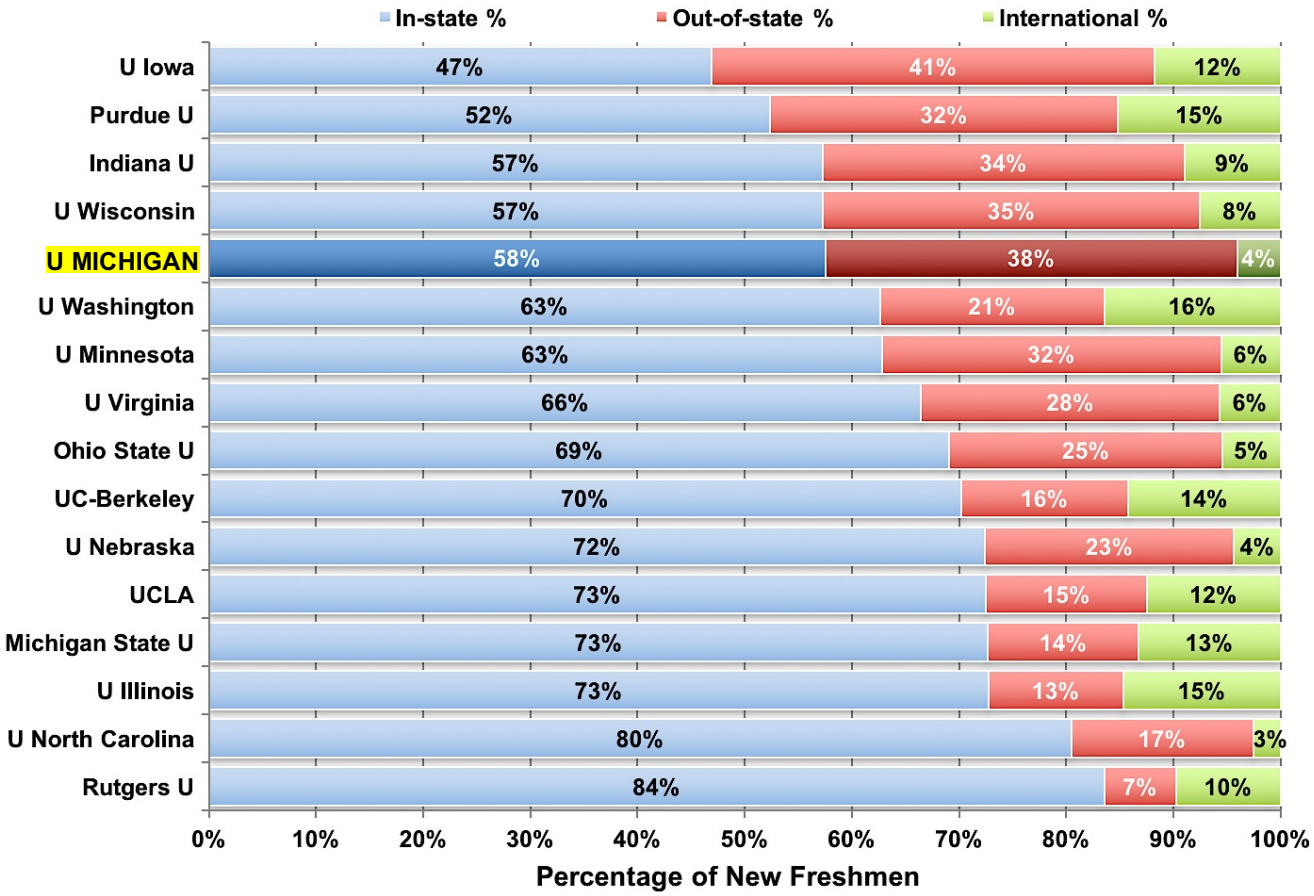
The distribution of in-state and out-of-state students among undergraduates is partially dependent on the size of each high school graduating class in Michigan, which is on the decline. In 2008, the number of Michigan public high school graduates peaked at 109,542[7]. By 2020, the total number of public high school graduates has been projected to drop to 94,000[8], about 14 percent below the 2008 peak.

The counts in this chart include students enrolled in the Pharm.D. program who were classified as undergraduate students, a practice that ended with Fall 2017.

[7] Cohort Graduation and Dropout Reports, Center for Educational Performance and Information, Michigan.gov.
[8] Knocking at the College Door, Western Interstate Commission for Higher Education, March 2008, Michigan Projection.

## Michigan enrolls a somewhat higher fraction of out-of-state/international new freshman students compared to many of its public university peers.

### 2.6.2 Geographic Origin of New Freshman Students, U-M and Public Big Ten and Peer Institutions[9], by Percent, Fall 2015.




SOURCE: Integrated Postsecondary Education Data System (IPEDS).

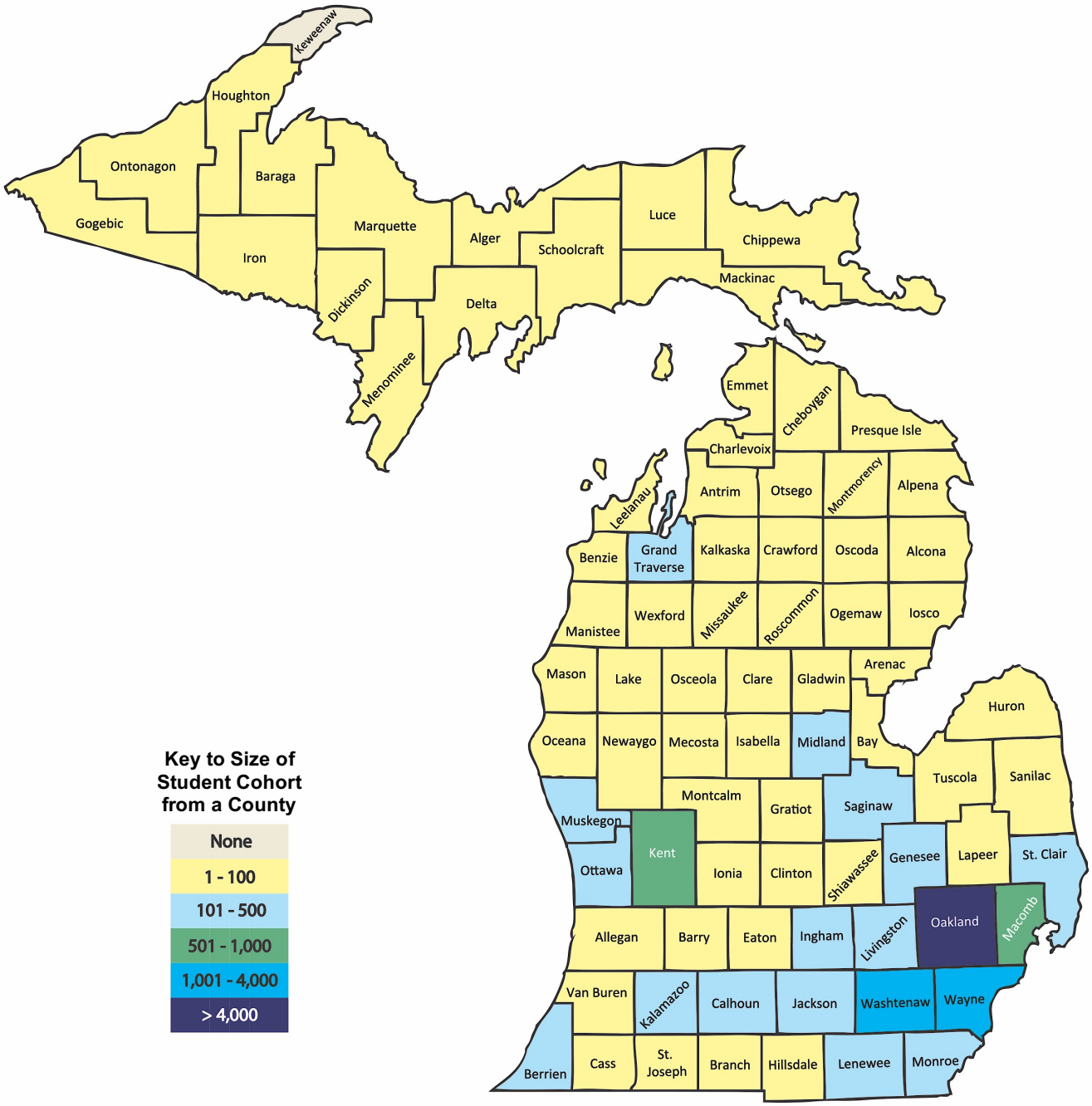
IPEDS collects geographic origin data only for new freshman students.

IPEDS designates this data element as optional for Fall 2015, and two Big Ten schools – University of Maryland and Pennsylvania State University – that would ordinarily be included in this chart – did not report data.

[9] 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.

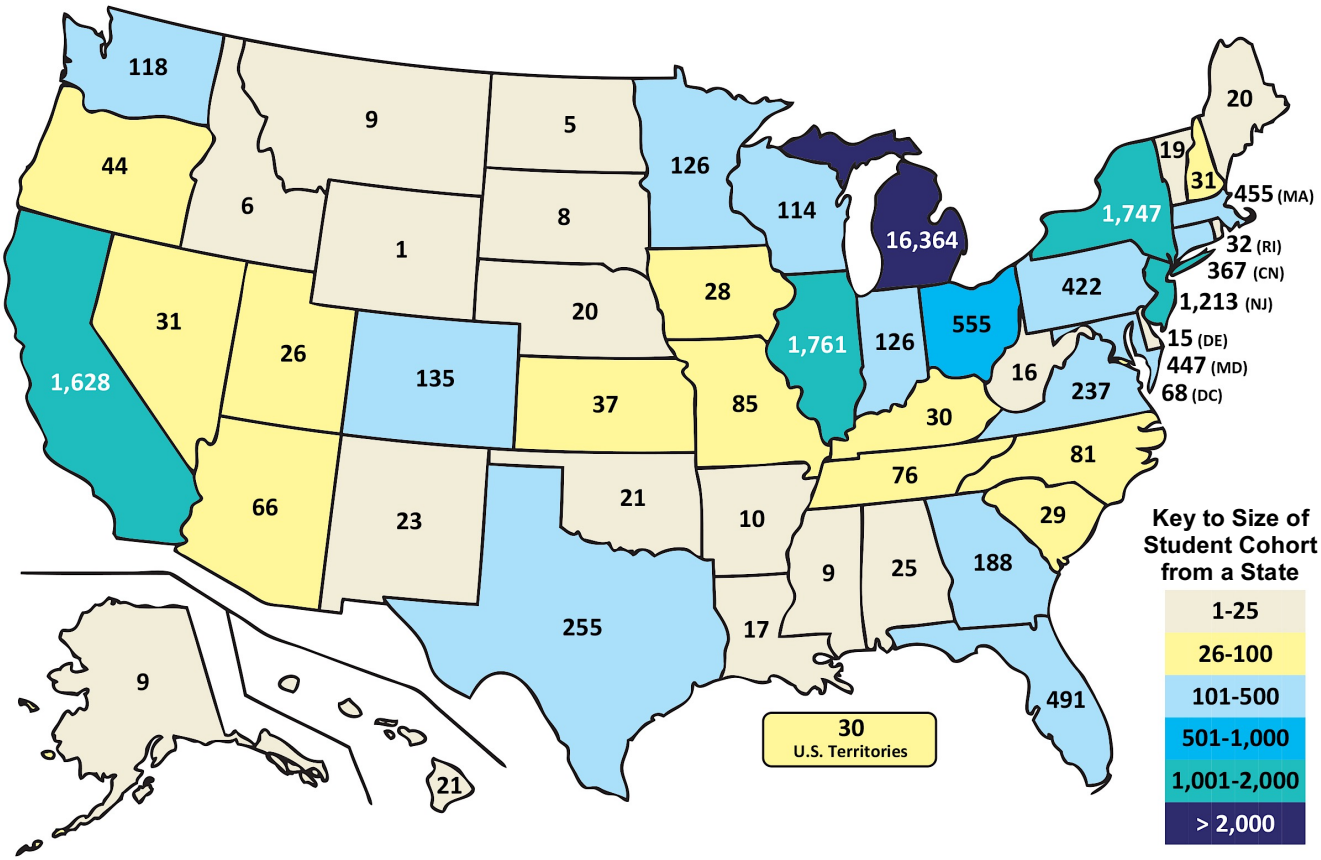
### 2.6.3 U-M Ann Arbor Campus Undergraduate Student Enrollment from the State of Michigan by County, Fall 2017.



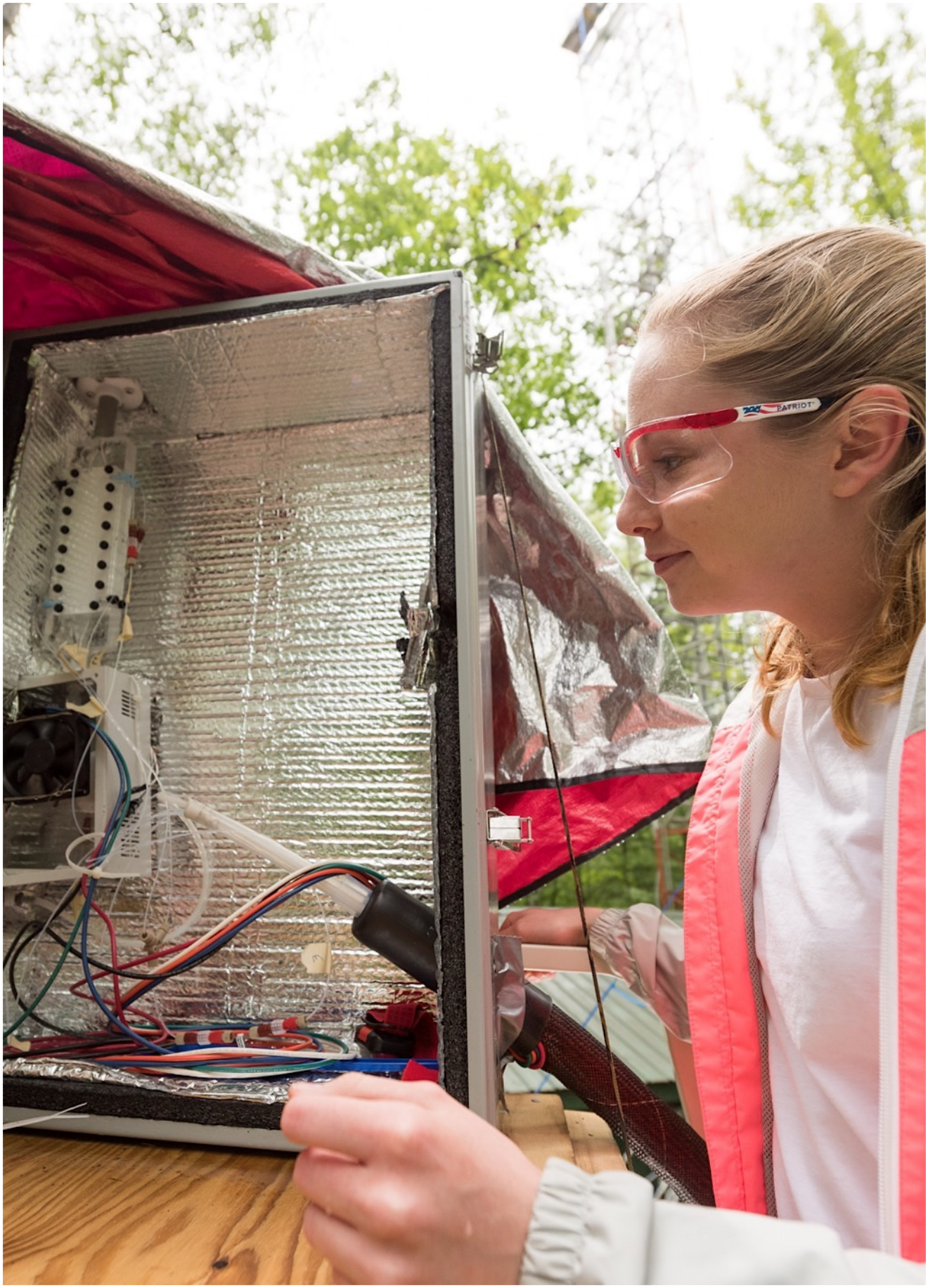

SOURCE: U-M Office of the Registrar.

## 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 Ann Arbor Campus Undergraduate Student Enrollment by State, Fall 2017.




SOURCE: U-M Office of the Registrar


PATRIOT

# Chapter 3 Undergraduate Students: Affordability

## Goals

The University of Michigan has a longstanding commitment to provide a package of financial aid that meets the full demonstrated need of admitted, in-state students to pay for tuition, room and board, textbooks and incidentals. Starting with the Winter 2018 term, the U-M launched the "Go Blue Guarantee," which pledges the University to provide aid to cover four years of tuition for any in-state student who is admitted and whose family income is below $65,000.

## Overview

The University has worked very hard in recent years to minimize tuition increases. 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, funded through a combination of aggressive cost containment and generous philanthropic contributions. Furthermore, the central financial aid budget for undergraduate students has grown by more than 11 percent annually over the last decade. In addition, student support is the highest priority for the current Victors for Michigan fundraising campaign.

There are two broad student loan categories: packaged loans and supplemental loans. Students who apply for financial aid at U-M are automatically considered for several low-interest federal loans. Packaged loans are generally based on student need and offered to eligible students as part of the student's financial aid package. 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.

In 2016-17, 70 percent of in-state and 51 percent of out-of-state students received some type of aid. The average student loan debt for in-state students who graduated in 2016-17 was $22,406.

## For More Information

Office of Financial Aid (finaid.umich.edu/)

Go Blue Guarantee (goblueguarantee.umich.edu/)

U-M Affordability Guide for In-State Students (admissions.umich.edu/costs-aid/michigan-residents/)

Cost Cutting and Budget Update (publicaffairs.vpcomm.umich.edu/key-issues/cost-cutting-budget-update/)

✦ *Chart updated since the September 2017 edition.*

## Charts in Chapter 3

## Tuition and fees for new in-state freshmen start at $7,413 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 $7,928.

### 3.1 Undergraduate Tuition and Required Fees, per Semester, 2017-18.

| School/College | Per semester | | |
|---|---|---|---|
| | Program | In-State | Out-of-State |
| **Taubman College of Architecture & Urban Planning** | Lower Division | $7,413 | $23,738 |
| | Upper Division | $8,348 | $25,404 |
| **Penny W. Stamps School of Art & Design** | Lower Division | $7,413 | $23,738 |
| | Upper Division | $8,348 | $25,404 |
| **Stephen M. Ross School of Business** | Lower Division | $7,859 | $24,139 |
| | Upper Division | $9,913 | $27,012 |
| **School of Dentistry (Dental Hygiene)** | Lower Division | $7,550 | $23,877 |
| | Upper Division | $8,491 | $25,549 |
| **School of Education** | Upper Division | $8,348 | $25,404 |
| **College of Engineering** | Lower Division | $7,928 | $23,877 |
| | Upper Division | $10,223 | $26,794 |
| **School of Information** | Upper Division | $8,348 | $25,404 |
| **School of Kinesiology** | Lower Division | $7,819 | $25,235 |
| | Upper Division | $8,964 | $27,560 |
| **College of Literature, Science & the Arts** | Lower Division | $7,413 | $23,738 |
| | Upper Division | $8,348 | $25,404 |
| **Medical School**[1] | Upper Division | $8,348 | $25,404 |
| **School of Music, Theatre & Dance** | Lower Division | $7,706 | $24,053 |
| | Upper Division | $8,640 | $25,718 |
| **School of Nursing** | Lower Division | $7,413 | $23,738 |
| | Upper Division | $8,348 | $25,404 |
| | Accelerated Second Career | $9,340 | $28,386 |
| **College of Pharmacy** | Upper Division | $8,348 | $25,404 |
| **Gerald R. Ford School of Public Policy** | Upper Division | $8,348 | $25,404 |

SOURCE: U-M Office of the Registrar.

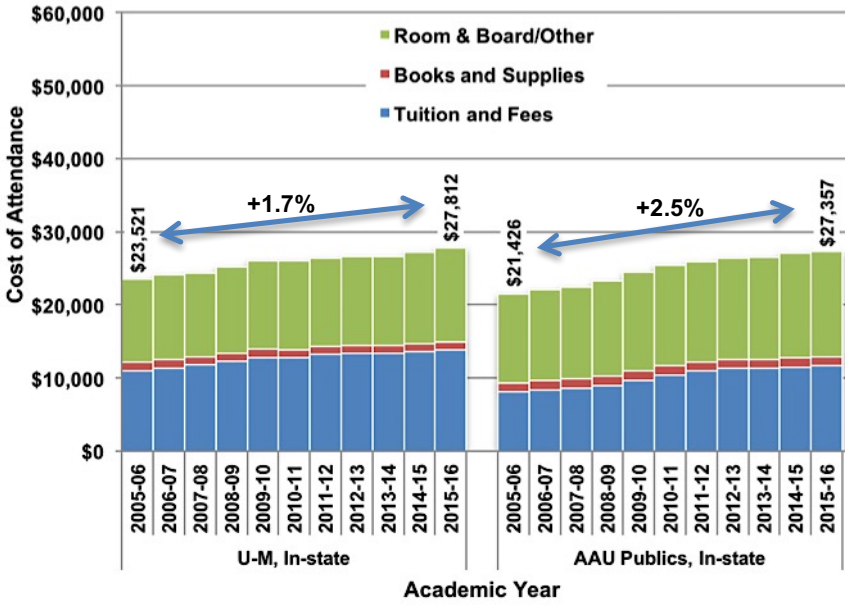
Tuition increased by 2.9 percent over 2015-16 for In-State undergraduate students. Out-of-State undergraduates saw increases of 4.5 percent over last year.

Students who have completed fewer than 55 credits toward program completion pay the Lower Division tuition rates. Those who have completed 55 credits or more pay Upper Division rates.

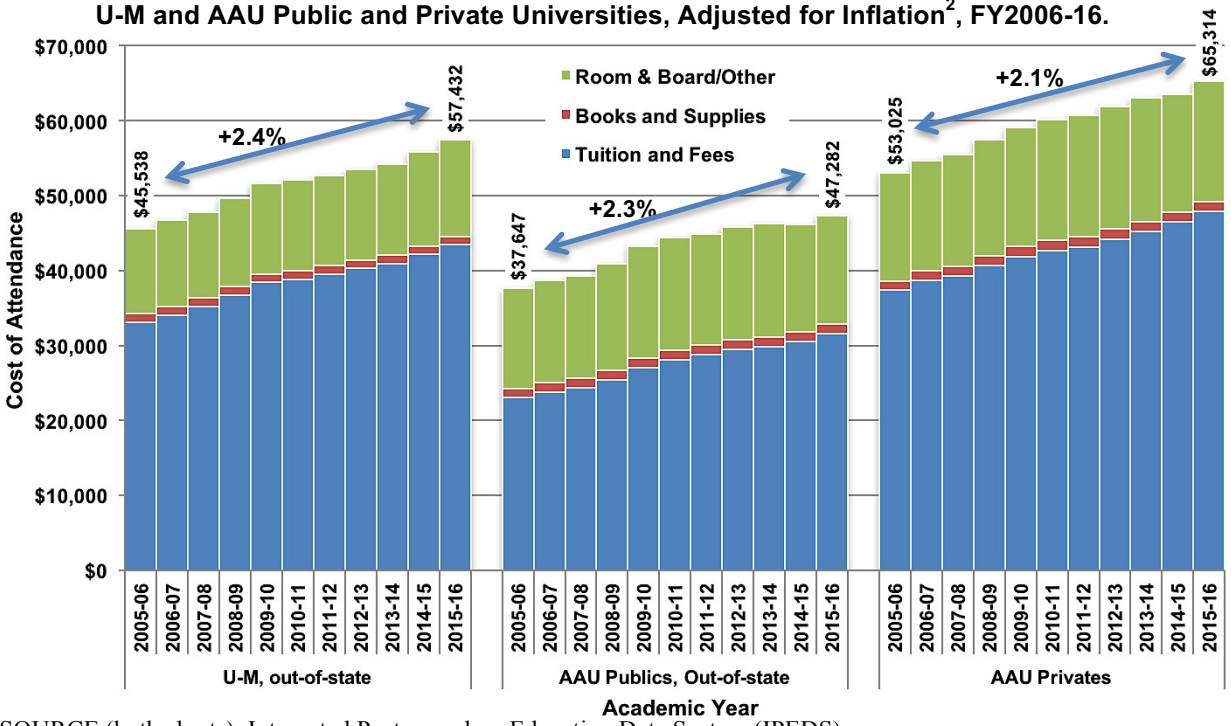
[1] The Medical School first offered the MEDPREP, a post-baccalaureate pre-medical program, in May 2015.

## Over the last decade, the "sticker price" for in-state U-M students has grown more slowly than the comparable average for in-state students at AAU public universities.

### 3.2.1 Total Cost of Attendance Before Financial Aid, In-State Students U-M and AAU Public Universities, Adjusted for Inflation[2], FY2006-16.




### 3.2.2 Total Cost of Attendance Before Financial Aid, Out-of-State Students, U-M and AAU Public and Private Universities, Adjusted for Inflation[2], FY2006-16.



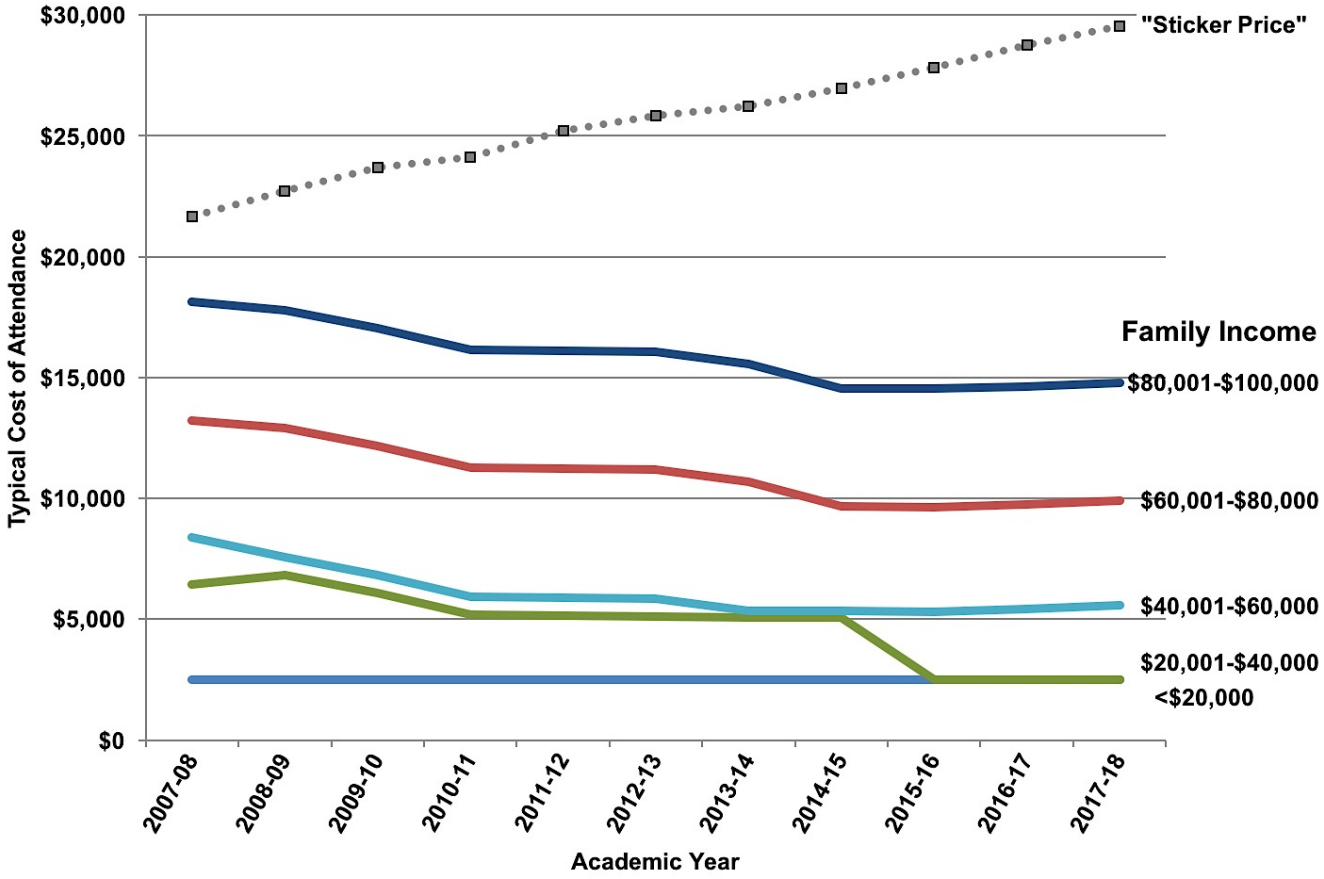

SOURCE (both charts): Integrated Postsecondary Education Data System (IPEDS).

The total cost of attendance (*excluding* any 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 financial aid provided, as well as the differences in transportation requirements and housing choices.

[2] Based on 2016 U.S. Consumer Price Index.

## Typical students with family incomes up to $100,000 pay less today to attend U-M than they did in 2007-08. The loan component in the financial aid package for such students is lower now, as well.

### 3.3.1 Projected Typical Cost of Attendance[3] for New U-M Freshmen by Family Income Level, Before Merit Aid, Academic Year 2008-18.




SOURCE: U-M Sample Financial Aid Packages, Office of Financial Aid.

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 $40,000 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.

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.

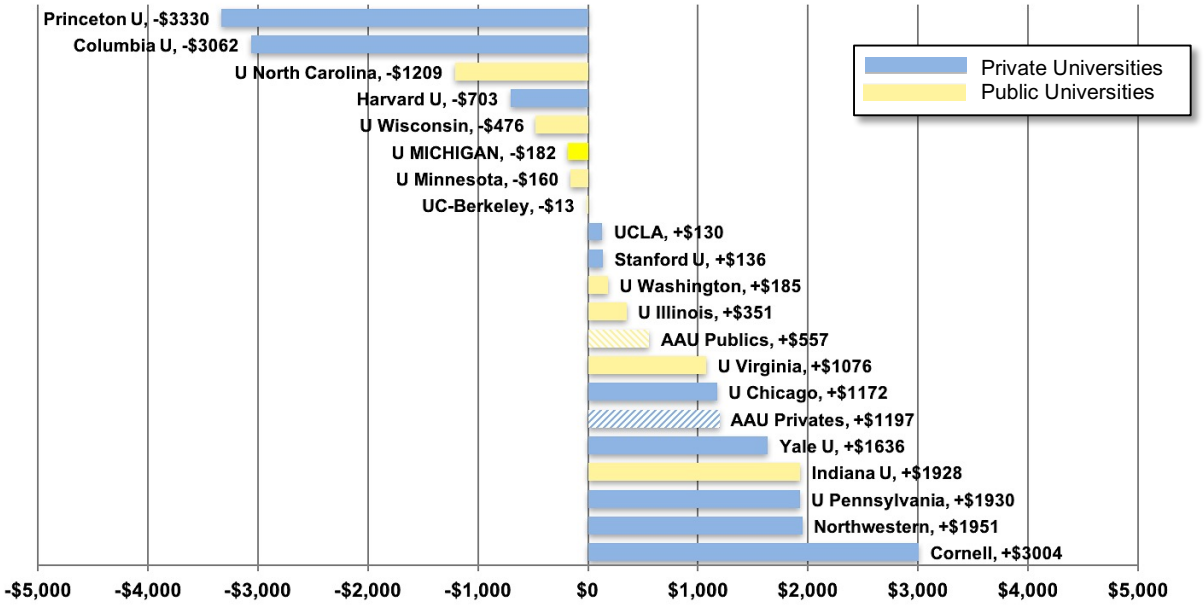
Merit-based scholarship aid is not reflected in the cost of attendance data presented here. Merit grants reduce the need to take loans or to participate in Work Study as part of a student's Expected Family Contribution.[4]

[3] The projected 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 also accounts for the tax credits typically available to families with annual incomes in the $20,000 to $100,000 range. The net cost does not take into account any reduction in loan amounts that were made possible through the award of merit-based scholarships.

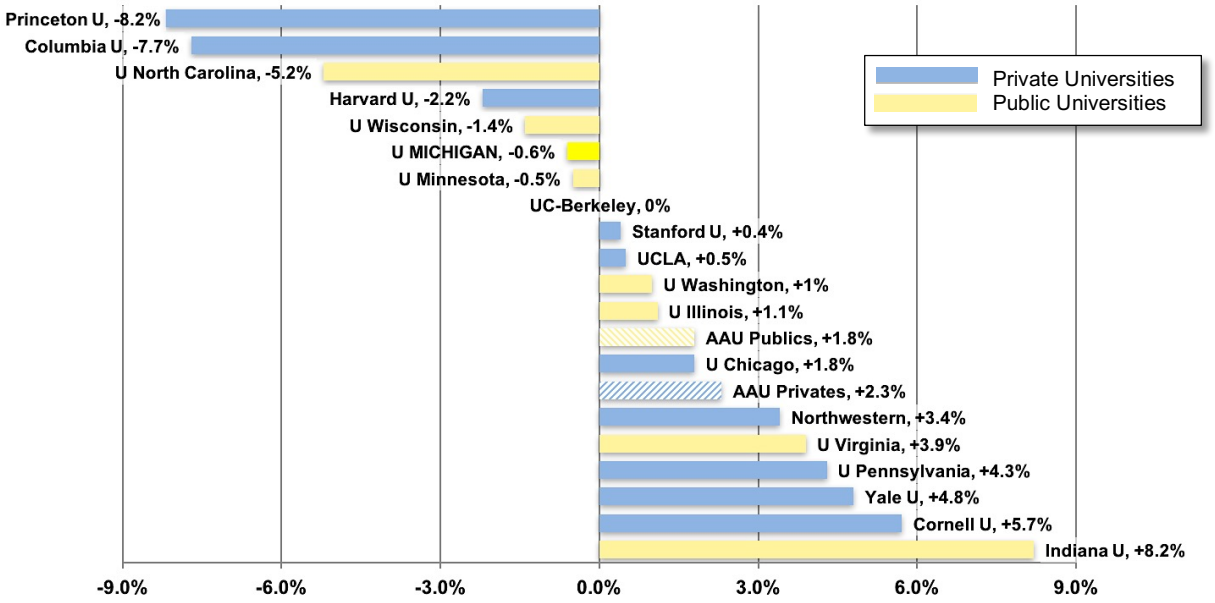
[4] Financial Aid Report to U-M Board of Regents from Martha E. Pollack, Provost, February 2016.

## From FY2013 to FY2015, the average net cost of attendance (or net price) for first-time, full-time freshmen who received grants or scholarships aid decreased slightly at the U-M, while a majority of its peer universities[5] had increased net price.

### 3.3.2 Dollar Change in Average Net Cost of Attendance for New Freshmen Receiving Aid, at U-M and Peers[5], FY2013-15.




### 3.3.3 Percent Change in Average Net Cost of Attendance for New Freshmen Receiving Aid, at U-M and Peers[5], FY2013-15.




SOURCE: Integrated Postsecondary Education Data System (IPEDS).

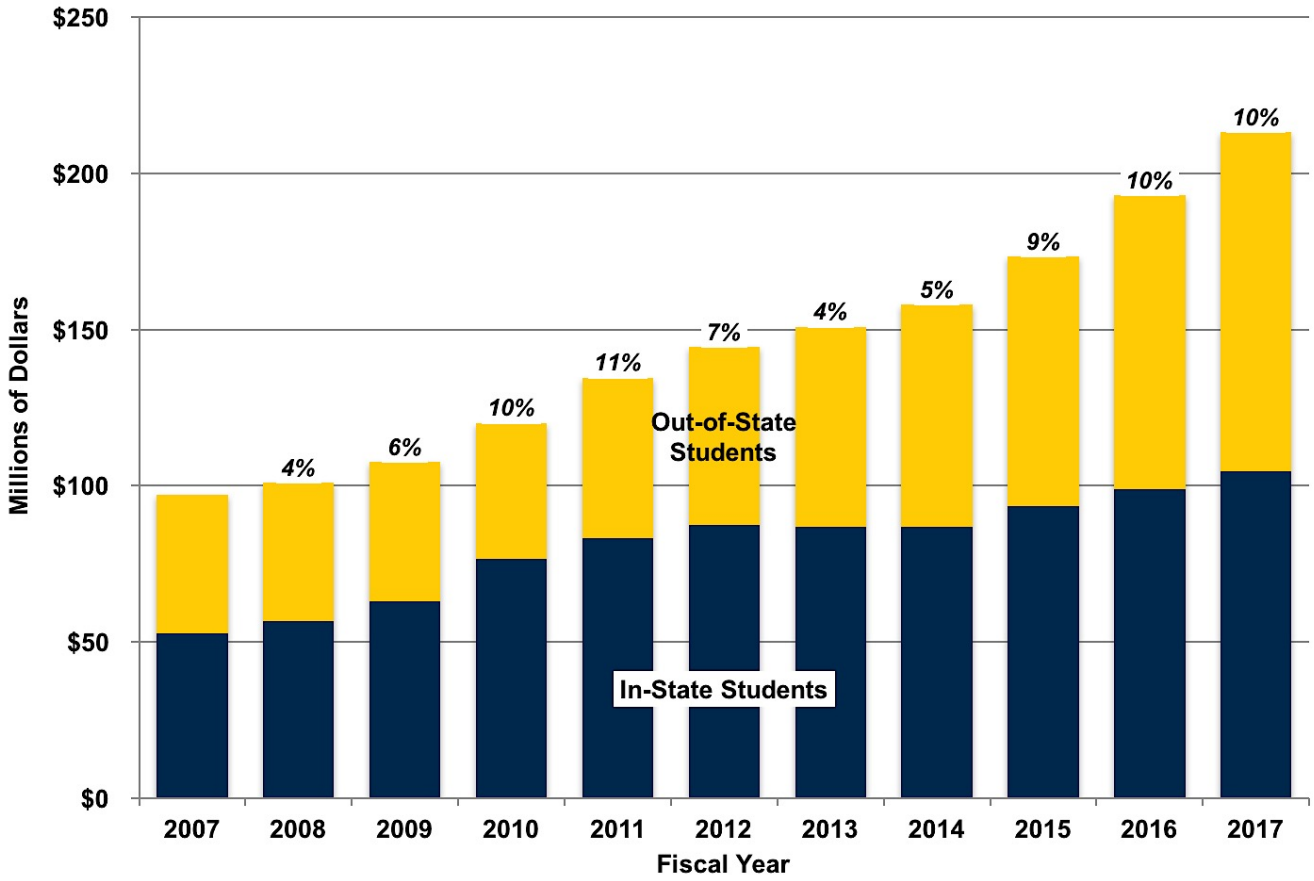
In FY2015, the average net cost of attendance (full cost minus financial aid) for U-M first-time, full-time in-state undergraduate students who received grant or scholarship aid had fallen to $15,757, compared to $15,939 for FY2013.

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.

[5] A list of "official" peers used for comparison on this page is published in Appendix A.

## In the 2016-17 academic year, the U-M provided $213 million in grants and scholarships from all university funds to undergraduate students.

### 3.4 Total U-M Expenditures for Undergraduate Student Grant and Scholarship Aid, by In-State/Out-of-State Status, Adjusted for Inflation[6], with Annual Percentage Increases, FY2007-17.




SOURCE: U-M Financial Aid Data.

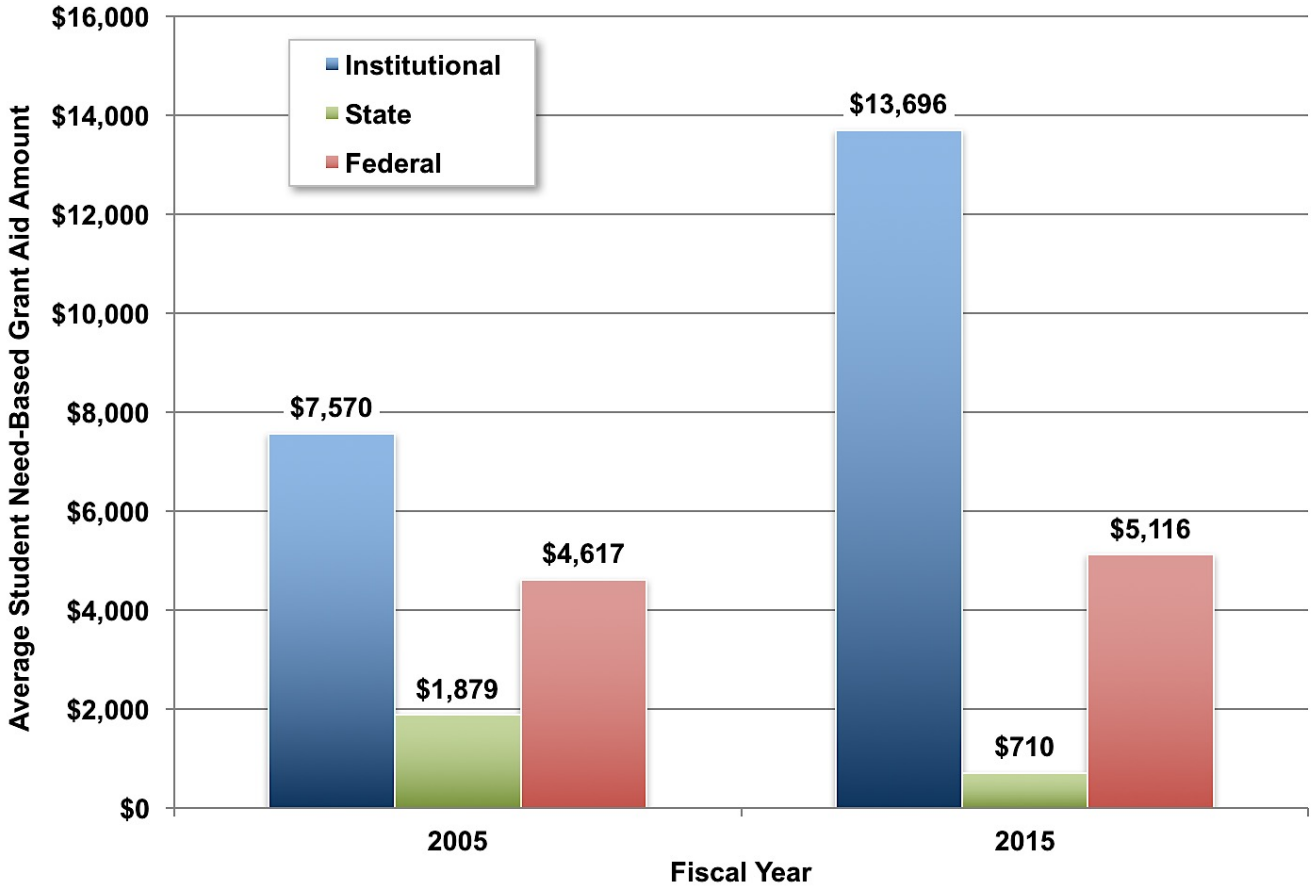
This chart shows the amount of financial aid paid to undergraduates from institutional funds as both need-based grants and merit-based scholarships. The value above each column is the percentage increase in expenditures for grant and scholarship aid from the previous year.

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.

[6] Inflation adjustment based on the estimated 2017 U.S. Consumer Price Index provided by the U-M Research Seminar on Quantitative Economics.

**Between FY2005 and FY2015, U-M increased the inflation-adjusted, average need-based institutional grant to new undergraduate students by $7,620. At the same time, when adjusted for inflation, the average grant from the federal government increased by $1,386 and the average state grant decreased by $818.**

### 3.5.1 Average Per Student Need-based Grant Aid by Source, Adjusted for Inflation[7], for New Freshmen at U-M, FY2005 and FY2015.



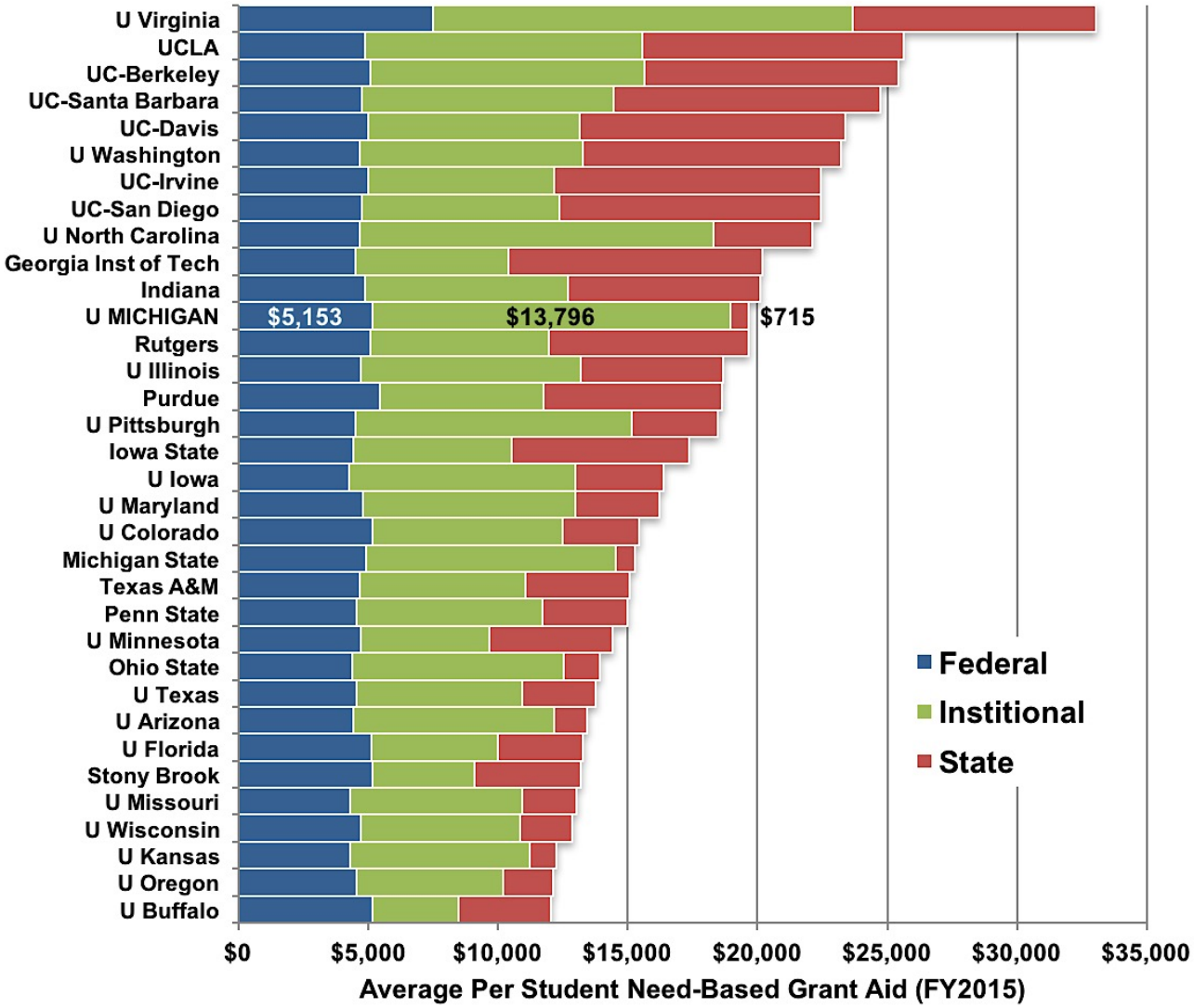

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

The University of Michigan is committed to providing financial aid to meet the full demonstrated need of admitted, 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 123 percent higher in FY2015 than in FY2005. Conversely, when adjusted for inflation, the average need-based grant from the State of Michigan is 53 percent smaller now compared to a decade ago.

[7] Based on 2015 U.S. Consumer Price Index.

## The University of Michigan provides the second-highest average institutional grant/scholarship aid of all AAU public institutions. However, the average state grant/scholarship aid to U-M students is second-lowest of all AAU public universities.

### 3.5.2 Average Per Student Grant or Scholarship Aid[8] by Source for New Freshmen, U-M and AAU Public Universities, 2014-15.




SOURCE: Integrated Postsecondary Education Data System (IPEDS).

Only one AAU public university – University of Virginia, at $16,194 per student – provides a larger average institutional grant/scholarship aid to new freshman students. U-M's average institutional grant/scholarship aid to new freshman is $13,796.

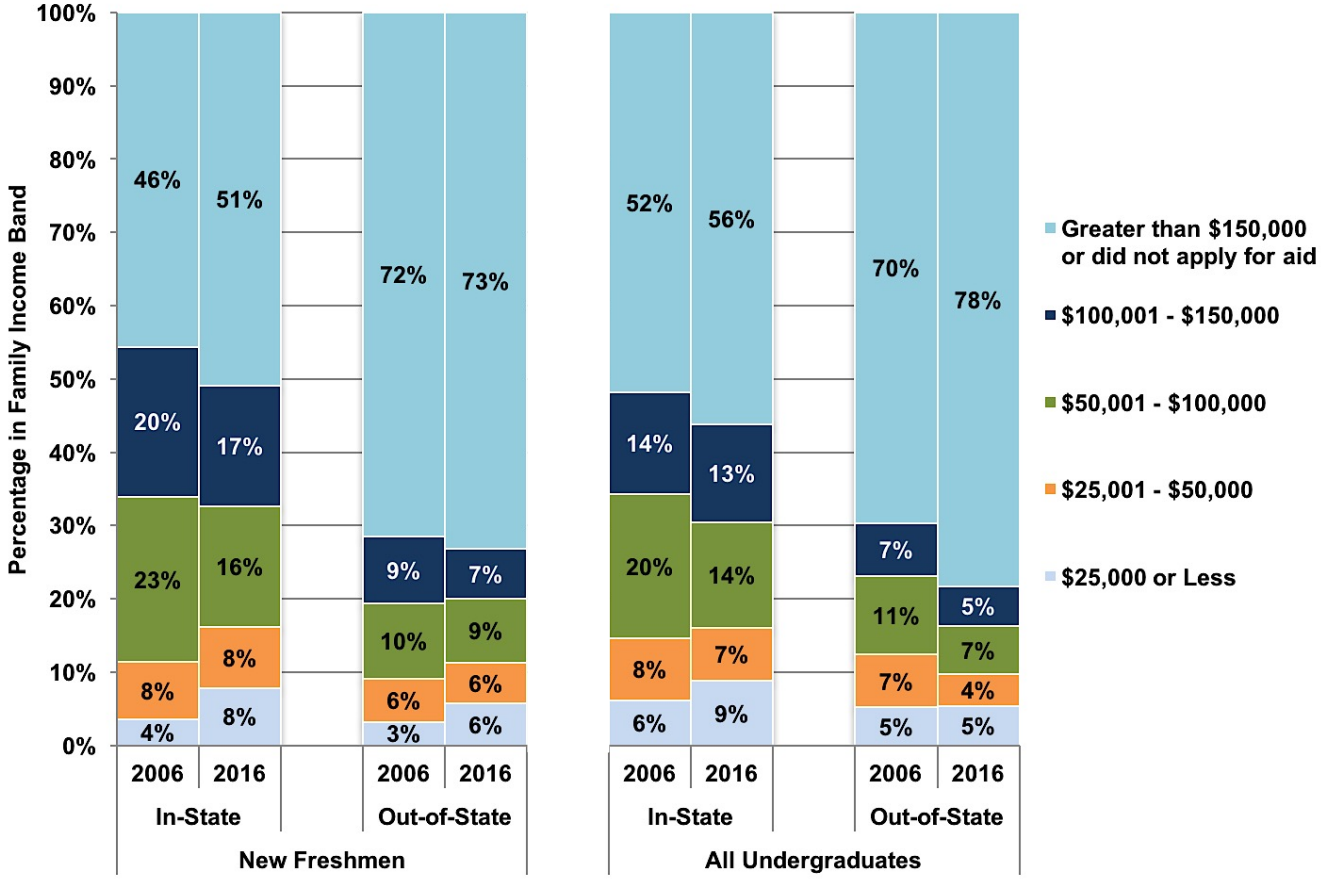
The average grant/scholarship to U-M students from the State of Michigan is smaller than similar average state aid provided to other AAU public universities. The average federal grant/scholarship aid to U-M students is $317 higher than the average for AAU public institutions as a group.

**Note**: The bar segments above are the separate average grant/scholarship amounts for that grant source; the segments do not sum to the total average grant/scholarship from all sources.

[8] The average aid calculation is based only on students who receive such aid.

## The fraction of in-state new freshmen and all undergraduate students from families with an annual income of $50,000 or less is larger now than a decade ago.

### 3.6.1 Family Income Distribution for New Freshmen and All Undergraduates, by In-State and Out-of-State Status, Fall 2006 & Fall 2016.




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.

## The U-M enrolls a low percentage of students eligible for Pell Grants compared to most other AAU public universities, and simliar to the levels at many private universities.

### 3.6.2 Pell Grant Recipients as Percent of Undergraduate Student Body, U-M and AAU Institutions, 2015-16.

| | Percent of undergrads with Pell grants |
|---|---|
| AAU Privates (average) | 24% |
| AAU Publics (average, excluding U-M) | 16% |
| | |
| University of California-Irvine | 45% |
| University of California-Davis | 40% |
| University of California-Santa Barbara | 39% |
| University of California-Los Angeles | 35% |
| University of California-San Diego | 35% |
| Stony Brook University (SUNY) | 33% |
| University at Buffalo (SUNY) | 32% |
| Rutgers University | 31% |
| University of Arizona | 31% |
| University of California-Berkeley | 30% |
| University of Florida | 28% |
| University of Texas at Austin | 24% |
| University of Oregon | 24% |
| Michigan State University | 23% |
| Columbia University | 22% |
| Texas A & M University | 22% |
| University of Kansas | 22% |
| University of North Carolina | 22% |
| University of Southern California | 22% |
| University of Washington | 22% |
| Iowa State University | 21% |
| New York University | 21% |
| University of Illinois | 21% |
| Emory University | 20% |
| Ohio State University | 20% |
| University of Missouri | 20% |
| University of Iowa | 19% |
| University of Maryland | 19% |
| University of Minnesota | 19% |

| | Percent of undergrads with Pell grants |
|---|---|
| Brandeis University | 18% |
| Purdue University | 18% |
| University of Rochester | 18% |
| Massachusetts Institute of Technology | 17% |
| Case Western Reserve University | 16% |
| Georgia Institute of Technology | 16% |
| University of Colorado | 16% |
| University of Pittsburgh | 16% |
| Brown University | 15% |
| Cornell University | 15% |
| Indiana University | 15% |
| Pennsylvania State University | 15% |
| Princeton University | 15% |
| Rice University | 15% |
| Stanford University | 15% |
| UNIVERSITY OF MICHIGAN | 15% |
| Northwestern University | 14% |
| University of Wisconsin | 14% |
| Vanderbilt University | 14% |
| Yale University | 14% |
| Boston University | 13% |
| California Institute of Technology | 13% |
| Duke University | 13% |
| Tulane University of Louisiana | 13% |
| University of Pennsylvania | 13% |
| Carnegie Mellon University | 12% |
| Johns Hopkins University | 12% |
| University of Virginia | 12% |
| Harvard University | 11% |
| University of Chicago | 11% |
| Washington University | 8% |

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 2015-16 academic year was $5,775, which is then 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.

Data for public universities are shaded in yellow; private university data are shaded in blue.

## Seventy percent of in-state undergraduate students receive some kind of financial aid, and 40 percent of in-state undergraduates receive need-based grants.

### 3.6.3 Number and Percentage of Undergraduate Students Receiving Aid, by Type, 2016-17.

| Aid Type | In-State[8] *(16,301)*[9] | Out-of-State[8] *(12,663)*[9] |
|---|---|---|
| **Need-based Grant Aid** | **6,565 (40%)** | **2,937 (23%)** |
| **Merit-based Scholarship Aid** | **8,054 (49%)** | **4,302 (34%)** |
| **Work Study** | **1,848 (11%)** | **665 (5%)** |
| **Loans** | **5,876 (36%)** | **3,239 (26%)** |
| **Any Type of Aid** | **11,390 (70%)** | **6,455 (51%)** |

### 3.6.4 Total Financial Aid Awarded and Average Total Award per Student Receiving Aid, 2016-17.

| Aid Awarded | In-State[8] | Out-of-State[8] |
|---|---|---|
| **Total Aid Awarded from all Sources** | **$191,182,856** | **$198,481,986** |
| **Average Total Award per Student Receiving Any Type of Aid** | **$16,785** | **$30,749** |

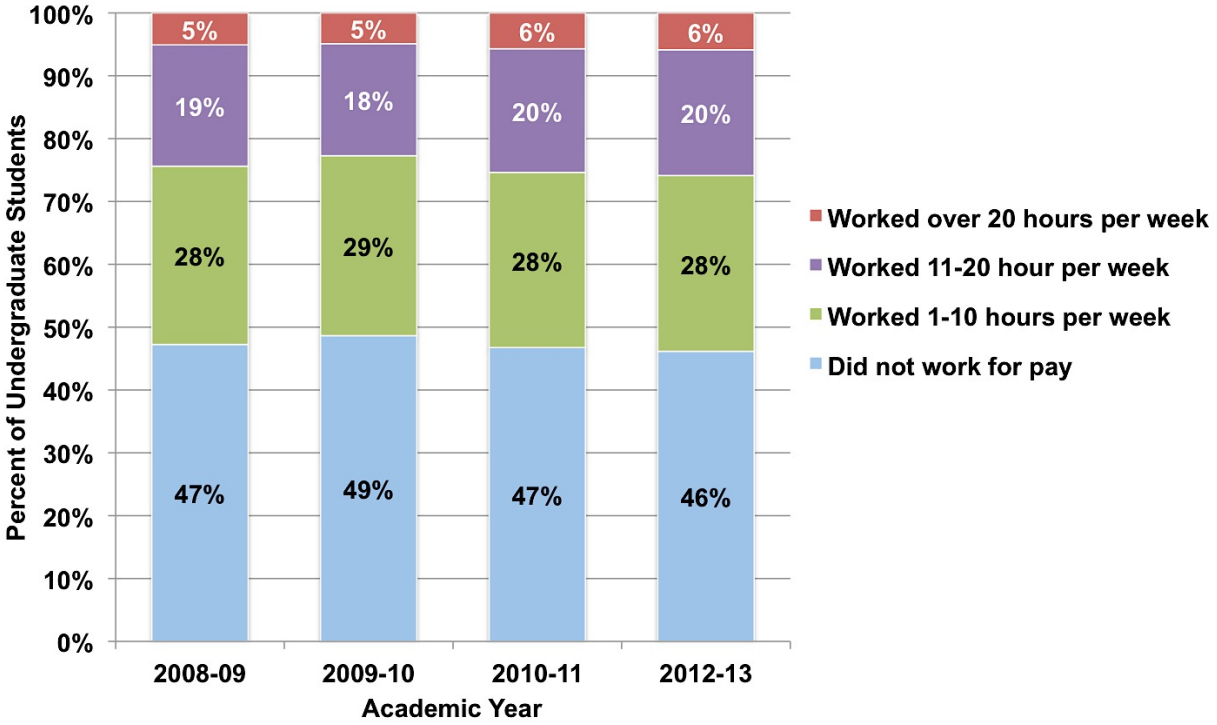
Source: U-M Office of Financial Aid.

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.

[8] Tuition residency status
[9] Fall 2016 enrollment

## 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[10], 2009-11, 2013.**




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[11]. 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.

[10] Percentage distributions exclude students who did not respond.

[11] The Condition of Education 2012, National Center for Education Statistics and American Institutes for Research, Indicator 37—College Student Employment, Table A-37-2.

## Slightly more than half of in-state undergraduate students in the 2016 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 U-M Undergraduate Students, 2016-17.

| | All Undergraduate Students *(6,905)*[13] | In-State[12] *(4,046)*[13] | Out-of-State[12] *(2,859)*[13] |
|---|---|---|---|
| **Average Loan Burden** | **$25,151** | **$22,406** | **$31,568** |
| **Number of Graduates with Loans** | **2,817** | **1,973** | **844** |
| **Percent of Graduates with Loans** | **41% of all undergraduates** | **49% of in-state graduates** | **30% of out-of-state graduates** |

SOURCE: U-M Financial Aid Data.

Forty-one percent of the 2016-17 undergraduate class graduated with debt. The average loan burden for in-state student graduates was $22,406 and for out-of-state students was $31,568. Compared to the previous year's graduating class, the average debt burden at graduation declined by $1,032 for in-state students and increased by $2,637 for out-of-state students. The percentage of in-state students who graduated with debt decreased by 3 percent from the previous graduating class, and the percentage of out-of-state students to graduate with debt decreased by 2 percent.

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.

[12] Tuition residency status

[13] Counts from 2016-17 graduating class

# 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 extra-curricular programs have been developed and implemented so that each student can complete a meaningful degree program in a reasonable time frame, and thereby advance his or her career and personal goals.

## Overview

The University takes a number of steps to facilitate students' timely progress 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 address impediments to successful completion of a degree. The academic units monitor student performance in key courses and require additional academic advising for students who perform poorly. 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.

This chapter includes 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 three-quarters 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' six-year completion rates are now 10 percentage points higher than the average of public Association of American Universities (AAU) member institutions, and nearly equal to the average of 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, 2016-17**

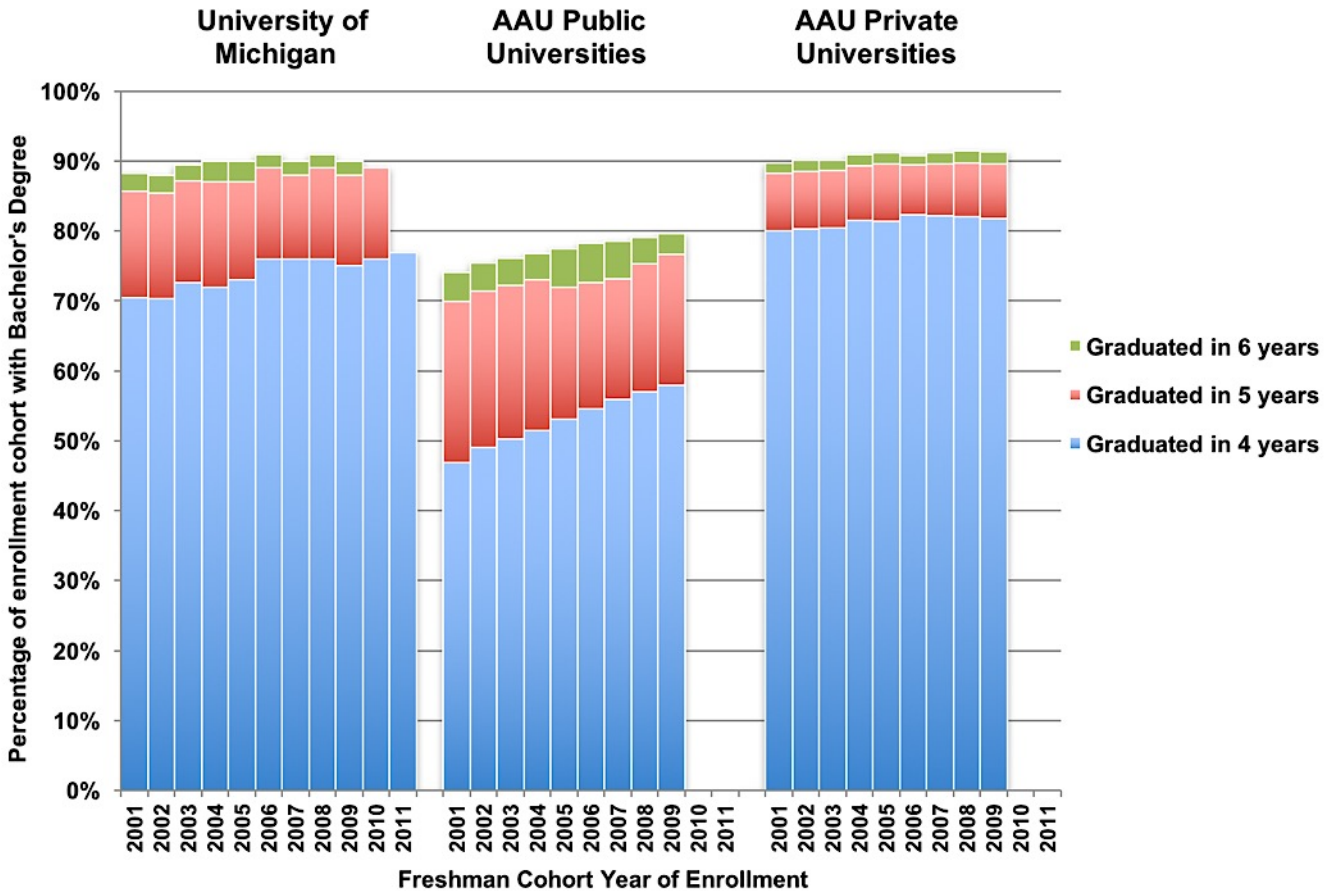
- **Computer Science** (6.5% of degrees granted)
- **Business** (6.2%)
- **Psychology** (5.7%)
- **Economics** (5.5%)
- **Political Science** (4.1%)

*Chart updated since the September 2017 edition.*

## Charts in Chapter 4

## 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.

### 4.1 Graduation Rates for U-M and AAU Public and Private Universities[1], Freshmen Cohorts Starting Fall 2001-11.




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

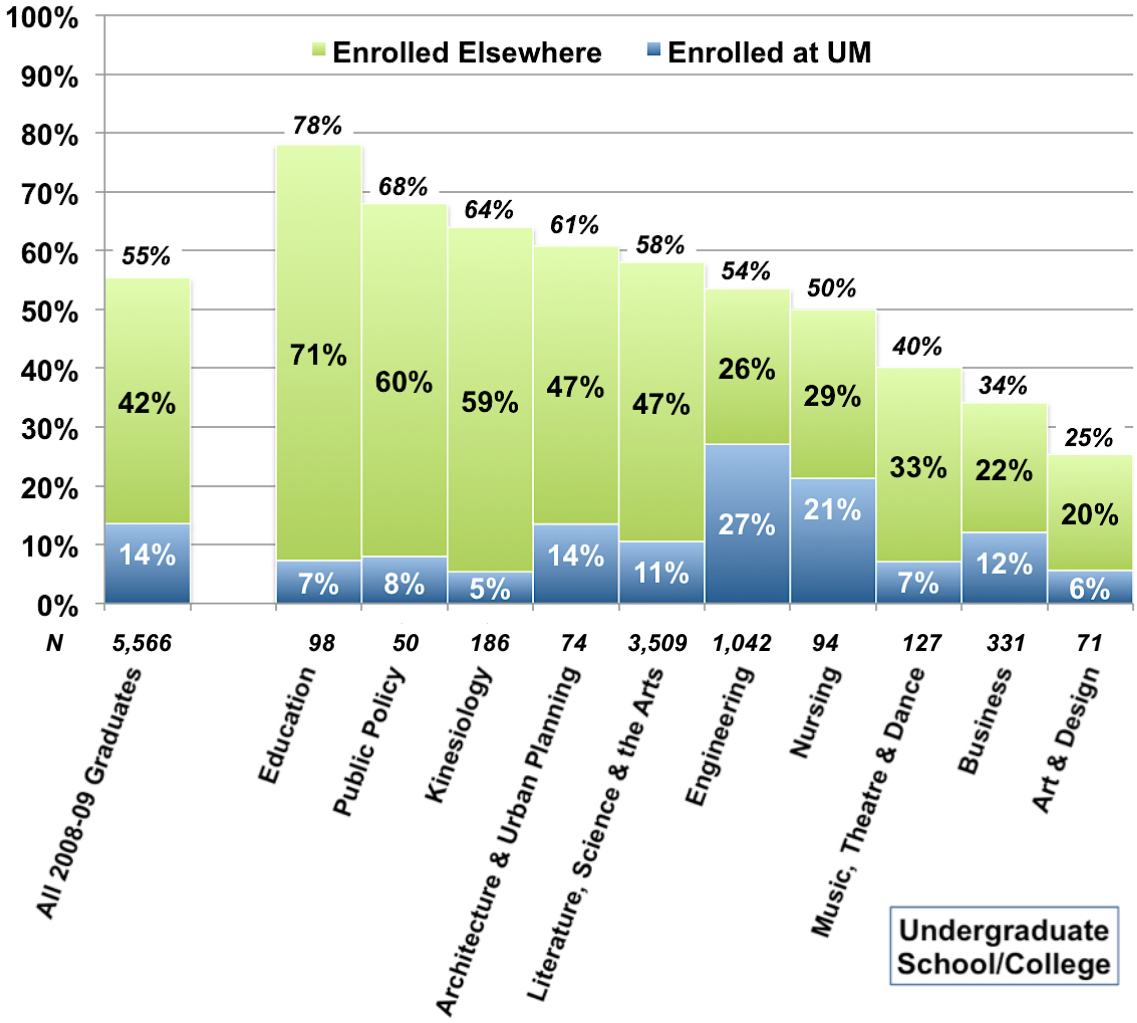
This chart shows the fractions of new freshmen cohorts that have graduated with a bachelor's degree in four, five and six years. The bottom axis represents the year each freshmen cohort started college. Comparative data from Association of American Universities (AAU) institutions[1] is displayed for 2001 through 2009 cohorts (which includes the most recent data available from IPEDS); additional U-M data is displayed for 2010 and 2011.

Graduation rates for U-M undergraduate students have generally increased over the time period shown. The trends are not as smooth as the AAU Publics and Privates because calculating the averages removes individual variation from the trends.

[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 2008-09.**



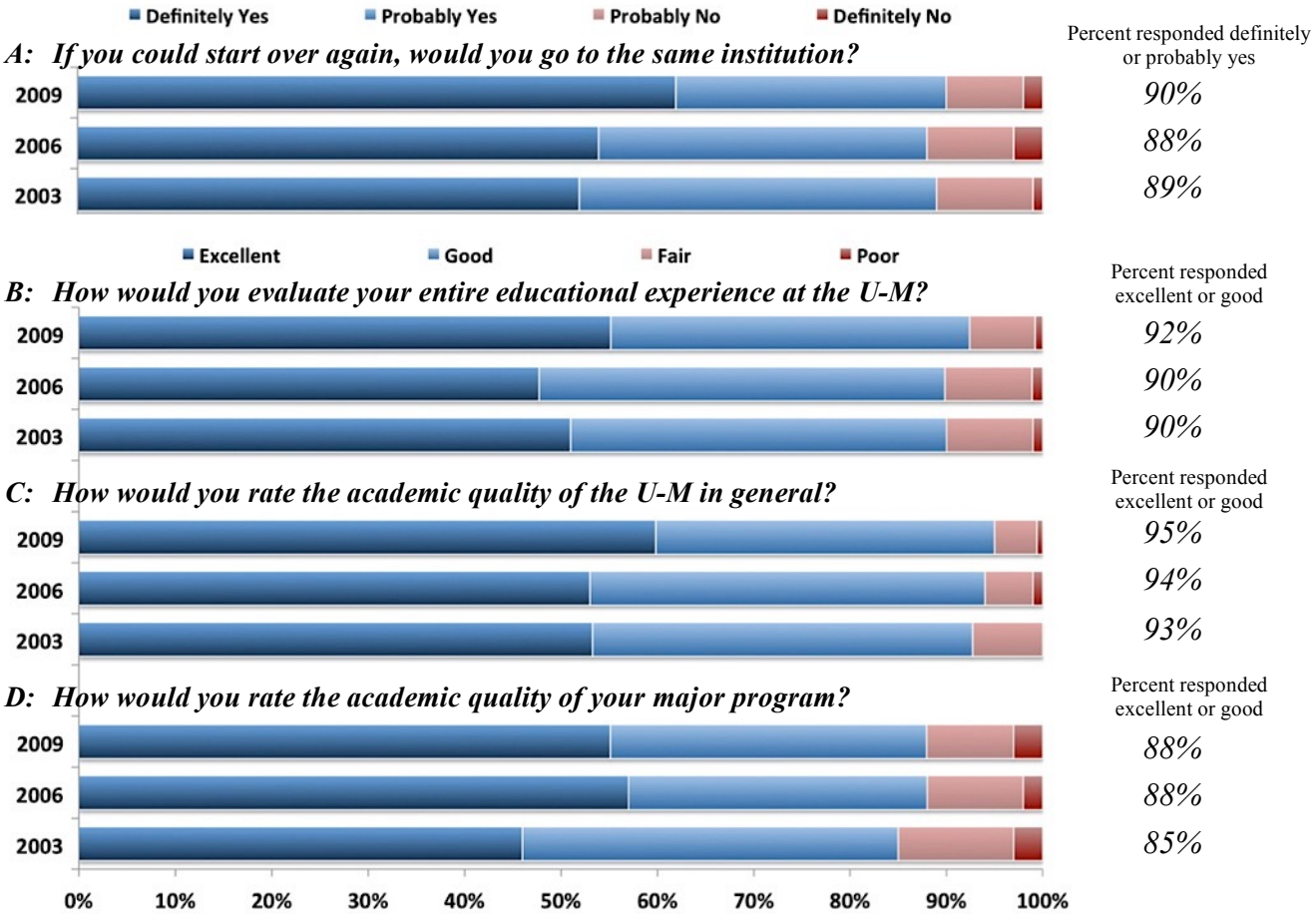

Source: National Student Clearinghouse.

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.

The percentage at the top of each column is the sum of the percentages of U-M bachelor's graduates in the National Student Clearinghouse (NSC) database who graduated from the U-M who then enrolled at the U-M and other schools. The "N" below each column is the total number of students in the NSC cohort and the undergraduate school or college that granted these students degrees in 2008-09.

## 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 Educational Experiences, 2003/2006/2009.

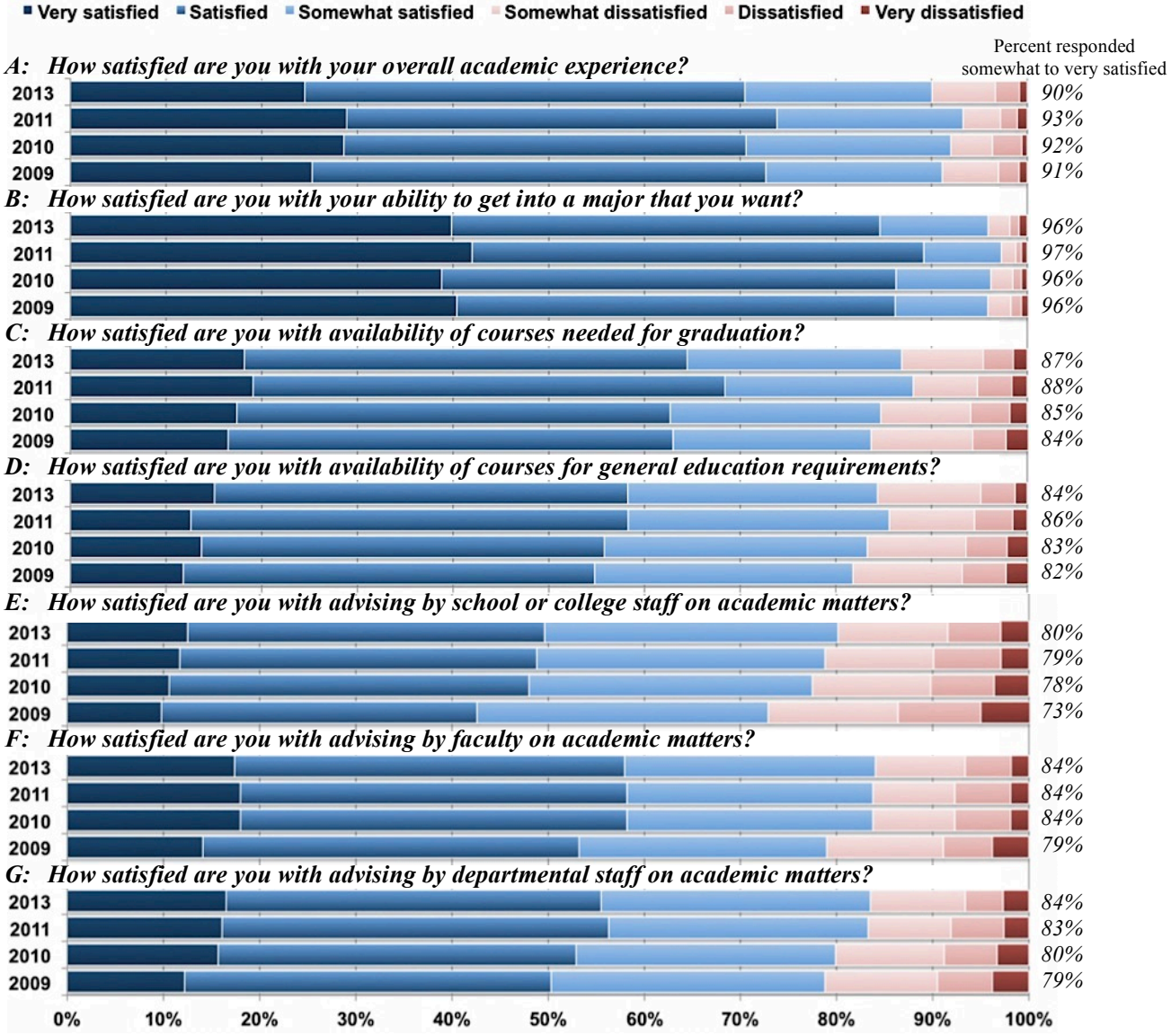



SOURCE: National Survey of Student Engagement.

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 selelcted 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.




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 rigorous and remarkably broad array of graduate and professional degree programs that are among the very best in the country. 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 2017, the University enrolled 8,610 students in 119 Ph.D., 149 master's degree, and 45 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 7,571 students enrolled in fall 2017 in professional degree programs in medicine, law, business, public health, dentistry, pharmacy, nursing, information, engineering, social work and architecture and urban planning. The schools or colleges administer these degree programs in keeping with each profession's requirements and standards.

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 an average of $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 75 percent of the students who enrolled in a program between 2001 and 2011 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)

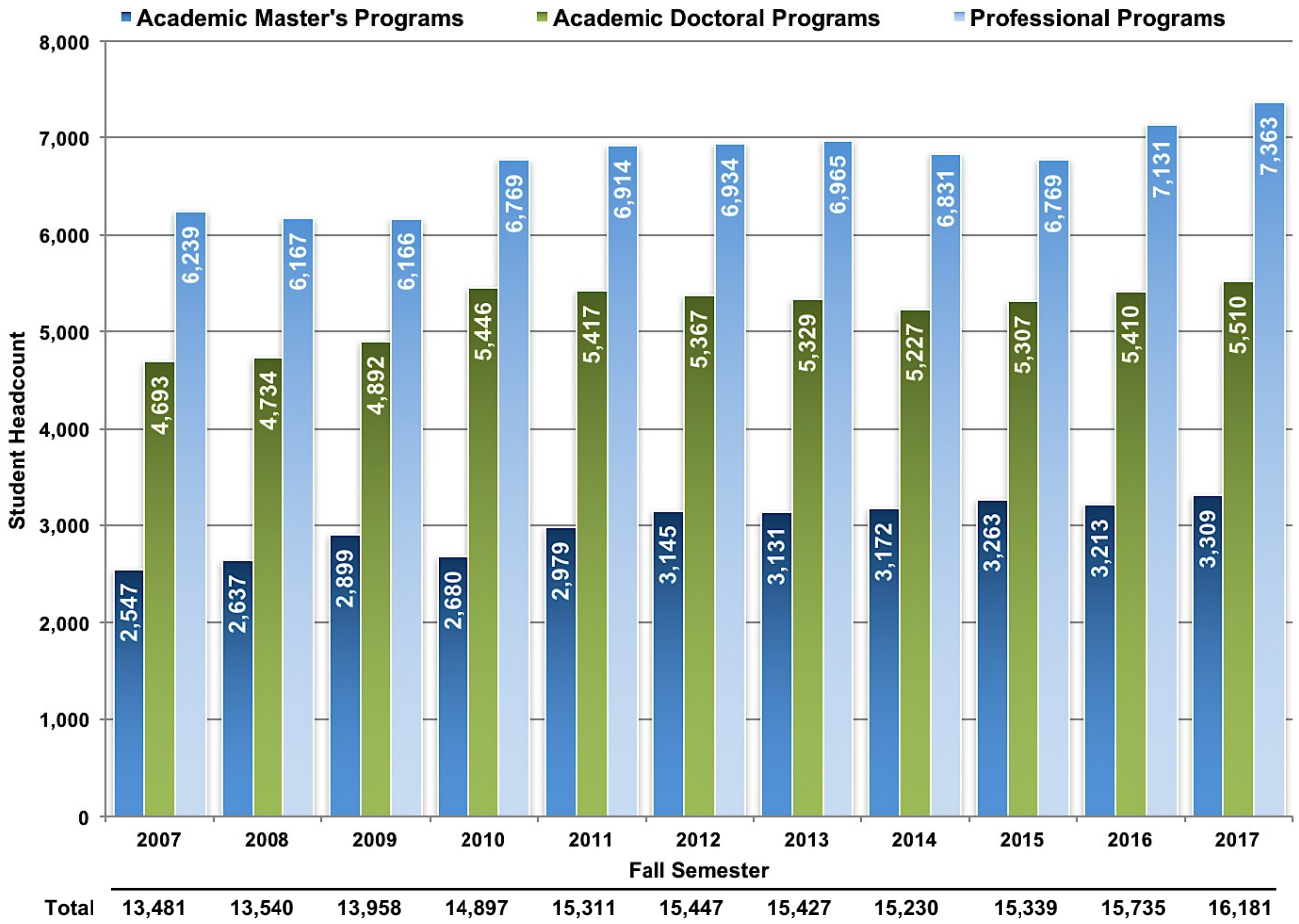
Data about the gender and racial/ethnic diversity of graduate students are reported in Chapter 8.

*Chart updated since the September 2017 edition.*

## Charts in Chapter 5

## Total graduate and professional student enrollment is 20 percent higher now compared to 10 years ago.

### 5.1.1 Graduate Academic and Professional[1] Student Enrollment by Level, Fall 2007-17.




SOURCE: U-M Student Data.

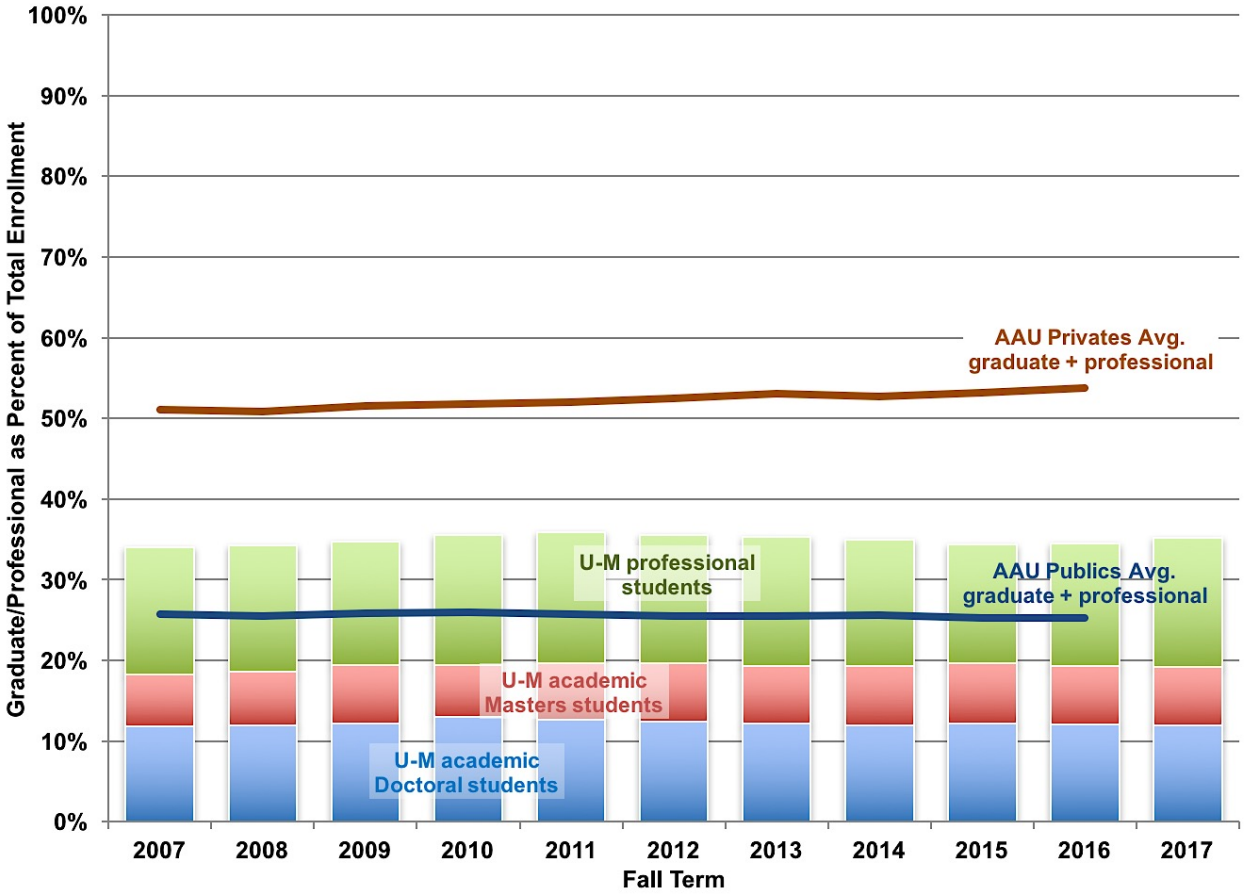
Total University of Michigan graduate and professional student enrollment has increased to 16,181 in Fall 2017 from 13,481 in Fall 2007.

Professional program counts include students enrolled in both professional doctorates (i.e. M.D., J.D) and professional master's degree programs (i.e. M.B.A., M.Arch.). A detailed list is found in Appendix D.

[1] A list of graduate academic and professional degrees is in Appendix D.

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

### 5.1.2 Graduate Academic and Professional[2] Student Enrollment by Percent of Total Enrollment for U-M and AAU Public and Private Universities[3], Fall 2007-17.




SOURCE: U-M Student Data; Integrated Postsecondary Education Data System (IPEDS).

Total University of Michigan student enrollment has increased to 46,002 for fall 2017 from 39,564 in fall 2007, while the total graduate enrollment – academic and professional – increased to 16,181 from 13,481.

U-M professional student enrollment during the last decade was highest in 2011 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 its maximum in 2015. Combined graduate and professional student enrollment as a fraction of the total student body is 0.6 percent greater in 2016 compared to 2006.

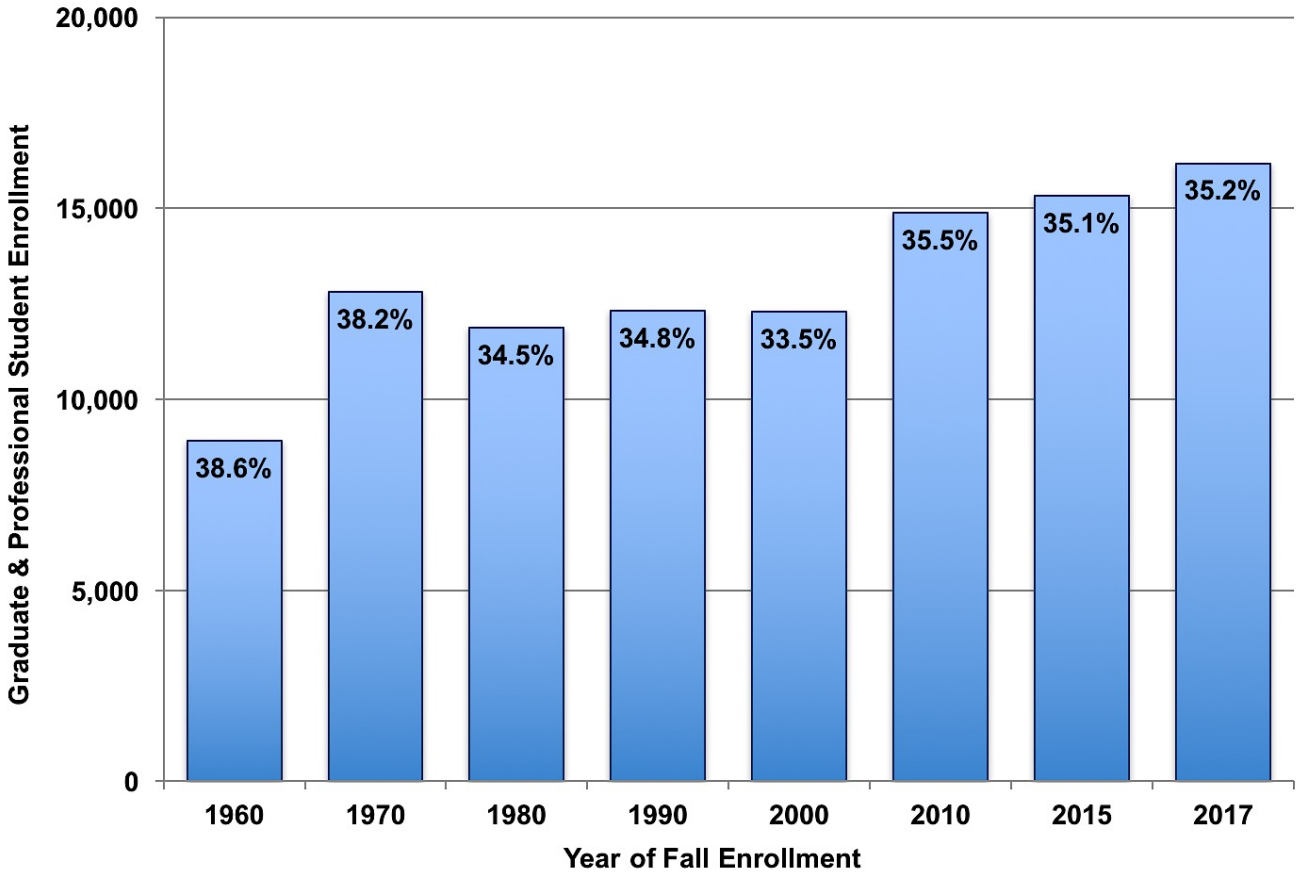
The average percentages reported for AAU Private and Public Universities are based on the combined enrollment of graduate academic and professional students compared to the total student enrollment at all levels – undergraduate, graduate and professional. (Note: AAU school counts as reported to IPEDS are lagged by one year from U-M data.)

[2] A list of graduate academic and professional degrees is in Appendix D.

[3] A list of Association of American Universities (AAU) member institutions is published in Appendix A.

**While the total number of graduate and professional students has grown from 8,916 in 1960 to 16,181 in 2017, the fraction of the total student body on the Ann Arbor campus that they represent has varied by less than five percent.**

**5.1.3 U-M Graduate Academic and Professional Student Enrollment Headcount, with Percent of Total Enrollment, for Selected Years from 1960 to 2017.**




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. The largest master's program is the M.B.A. in the Stephen M. Ross School of Business.

### 5.1.4 U-M Graduate Academic and Professional Student Enrollment by School/College and Degree Sought, Fall 2017.

| College/School | Academic | | Other | | Professional |
|---|---|---|---|---|---|
| | Master's | Ph.D. | Master's | Doctor's | Doctor's |
| Taubman College of Architecture & Urban Planning | 91 | 43 | 356 | - | - |
| Penny W. Stamps School of Art & Design | 18 | - | - | - | - |
| Stephen M. Ross School of Business | - | 84 | 1,730 | - | - |
| School of Dentistry | 98 | 12 | - | - | 471 |
| School of Education | 224 | 155 | - | - | - |
| College of Engineering | 1.489 | 1,666 | 479 | 3 | - |
| School for Environment & Sustainability | 252 | 32 | - | - | - |
| Horace H. Rackham School of Graduate Studies | 87 | 408 | - | - | - |
| School of Information | - | 66 | 406 | - | - |
| School of Kinesiology | 70 | 24 | - | - | - |
| Law School | - | - | - | - | 967 |
| College of Literature, Science & the Arts | 412 | 2,101 | - | - | - |
| Medical School | 134 | 335 | 17 | - | 892 |
| School of Music, Theatre & Dance | 12 | 112 | 179 | - | - |
| School of Nursing | - | 32 | 261 | - | 85 |
| College of Pharmacy | - | 83 | - | - | 85 |
| School of Public Health | 146 | 230 | 621 | 1 | - |
| Gerald R. Ford School of Public Policy | 194 | - | - | - | - |
| School of Social Work | - | - | 694 | - | - |
| Joint Programs by two Schools/Colleges | - | - | 75 | - | - |
| ***Grand Total, Graduate Students*** | ***3,227*** | ***5,383*** | ***4,818*** | ***4*** | ***2,749*** |

SOURCE: U-M Office of the Registrar.

The professional doctor's degrees include M.D., J.D., D.D.S, Pharm.D. (Doctor of Pharmacy), D.Eng. (Doctor of Engineering), D.P.H (Doctor of Public Health), and D.N.P. (Doctor of Nursing Practice).

The Joint Program (last row of table) is offered by the School of Information and the School of Public Health.

A complete list of graduate academic, other 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, 2017-18.

| School/College | Graduate Academic, per semester | | | Professional, per semester | | |
|---|---|---|---|---|---|---|
| | Program | In-State | Out-of-State | Program | In-State | Out-of-State |
| **Taubman College of Architecture & Urban Planning** | M.S./M.U.P.<br>Ph.D. Candidate | $14,741<br>$6,178 | $21,499<br>$6,178 | M.Arch. | $14,741 | $21,451 |
| **Penny W. Stamps School of Art & Design** | M.F.A | $11,566 | $22,451 | | | |
| **Stephen M. Ross School of Business** | M.A./Pre-candidate<br>Ph.D. Candidate | $11,823<br>$6,451 | $22,513<br>$6,451 | M.B.A. | $31,314 | $33,814 |
| **School of Dentistry** | M.S./Pre-candidate<br>Ph.D. Candidate | $8,621<br>$6,151 | $14,575<br>$6,151 | D.D.S. (3 sem./yr.) | $13,396 | $20,855 |
| **School of Education** | M.A./Pre-candidate<br>Ph.D. Candidate | $11,566<br>$6,236 | $23,199<br>$6,236 | | | |
| **College of Engineering** | M.S./Pre-candidate<br>Ph.D. Candidate | $12,900<br>$7,394 | $24,111<br>$7,394 | M.Eng.<br>D.Eng. | $13,251<br>$8,985 | $24,507<br>$8,985 |
| **School of Environment & Sustainability** | M.S./Pre-candidate<br>Ph.D. Candidate | $11,200<br>$6,041 | $22,023<br>$6,041 | | | |
| **School of Information** | Pre-candidate<br>Ph.D. Candidate | $11,348<br>$6,118 | $22,742<br>$6,118 | M.S.I. | $11,348 | $22,742 |
| **School of Kinesiology** | Pre-candidate<br>Ph.D. Candidate | $12,314<br>$6,118 | $24,850<br>$6,118 | | | |
| **Law School** | | | | J.D. | $28,586 | $30,209 |
| **College of Literature, Science, & the Arts** | M.A./M.S./ Pre-candidate<br>Ph.D. Candidate | $11,348<br>$6,118 | $22,742<br>$6,118 | | | |
| **Medical School** | M.S./Pre-candidate<br>Ph.D. Candidate | $11,371<br>$6,249 | $22,788<br>$6,249 | M.H.P.E<br>M.D. | $8,342<br>$18,040 | $9,100<br>$27,447 |
| **School of Music, Theatre & Dance** | M.A./M.F.A/ Pre-candidate<br>A.Mus.D. Candidate<br>Ph.D. Candidate | $11,566<br>$7,571<br>$6,236 | $23,199<br>$7,571<br>$6,236 | M.M./ Spec.M. | $11,865 | $23,499 |
| **School of Nursing** | M.S./Pre-candidate<br>Ph.D. Candidate | $11,697<br>$6,236 | $23,461<br>$6,236 | | | |
| **College of Pharmacy** | M.S./Pre-candidate<br>Ph.D. Candidate | $11,348<br>$6,118 | $22,742<br>$6,118 | Pharm.D. | $13,982 | $19,701 |
| **School of Public Health** | M.S./Pre-candidate<br>Ph.D. Candidate | $14,082<br>$6,230 | $23,160<br>$6,230 | M.P.H. | $14,082 | $23,160 |
| **Gerald R. Ford School of Public Policy** | M.P.P./M.P.A. | $12,833 | $23,199 | | | |
| **School of Social Work** | | | | M.S.W | $13,583 | $21,663 |

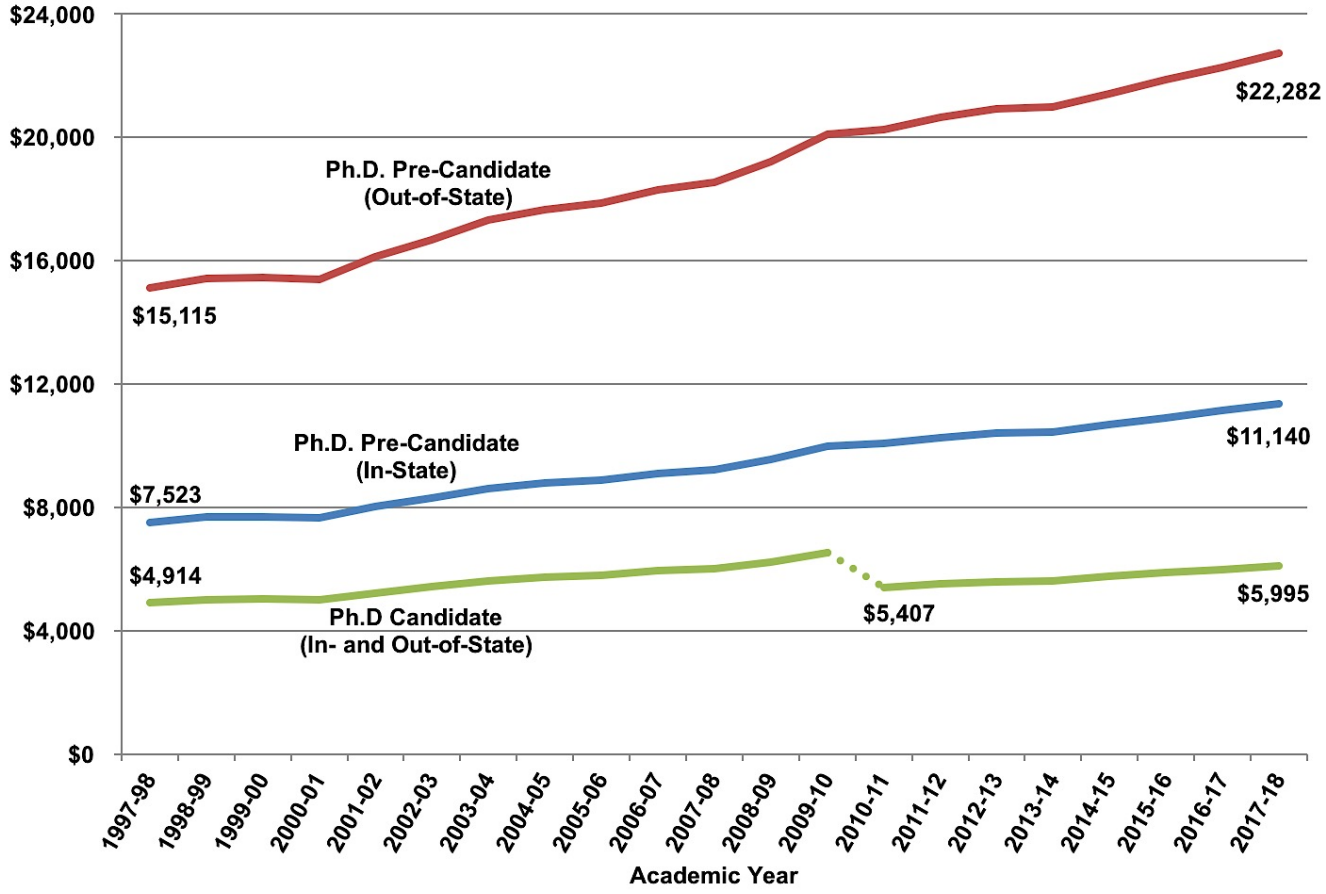
SOURCE: U-M Office of the Registrar.

These cost figures represent the published rates, although many students in these programs receive financial aid, which translates to a lower net price. Unless otherwise indicated, students usually attend school for two semesters per academic year.

Several schools and colleges offer specialized degrees and joint degree programs that are not listed above. The Registrar's Office posts tuition and fees for these programs at ro.umich.edu/tuition/.

**The inflation-adjusted tuition and required fees ("sticker price") for both in-state and out-of-state Ph.D. pre-candidacy students increased by nearly 50 percent from FY1998 to FY2018. 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 Inflation[4], per Semester, FY1998-2018.




SOURCE: UM Registrar.

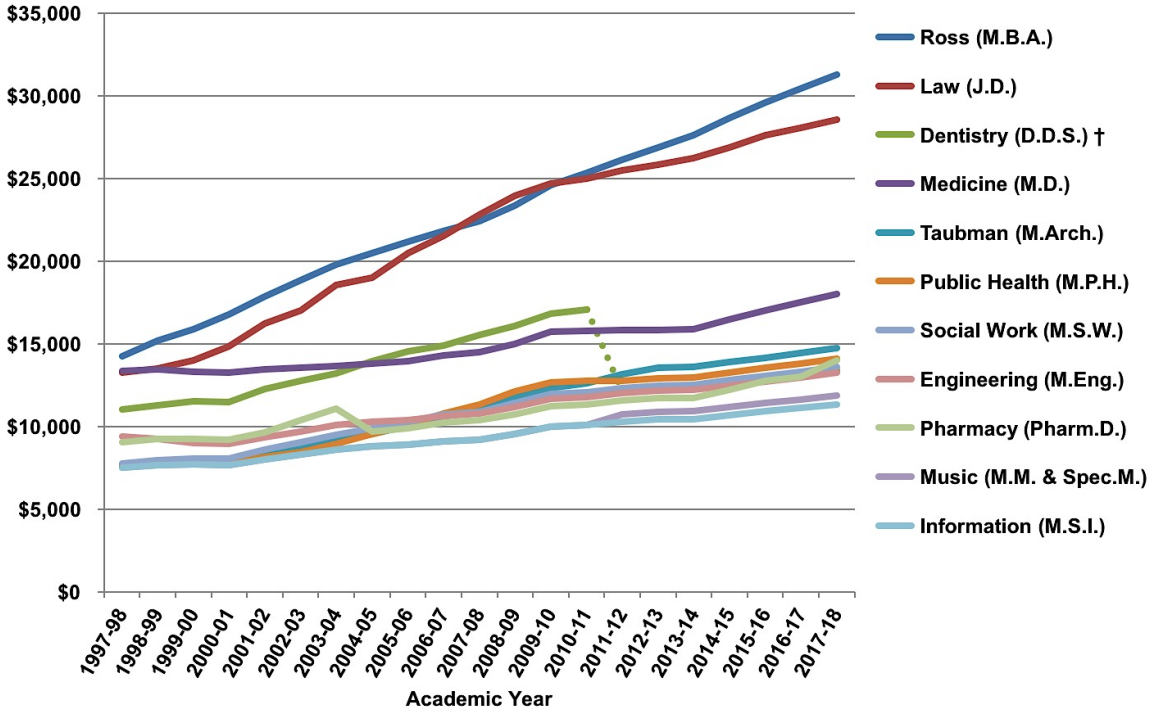
The chart represents tuition and required fees for graduate academic students in the College of Literature, Science and the Arts; School of Information; and College of Pharmacy. Rates vary for students enrolled in other graduate academic programs. (See chart 5.2.1)

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.[5] 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.

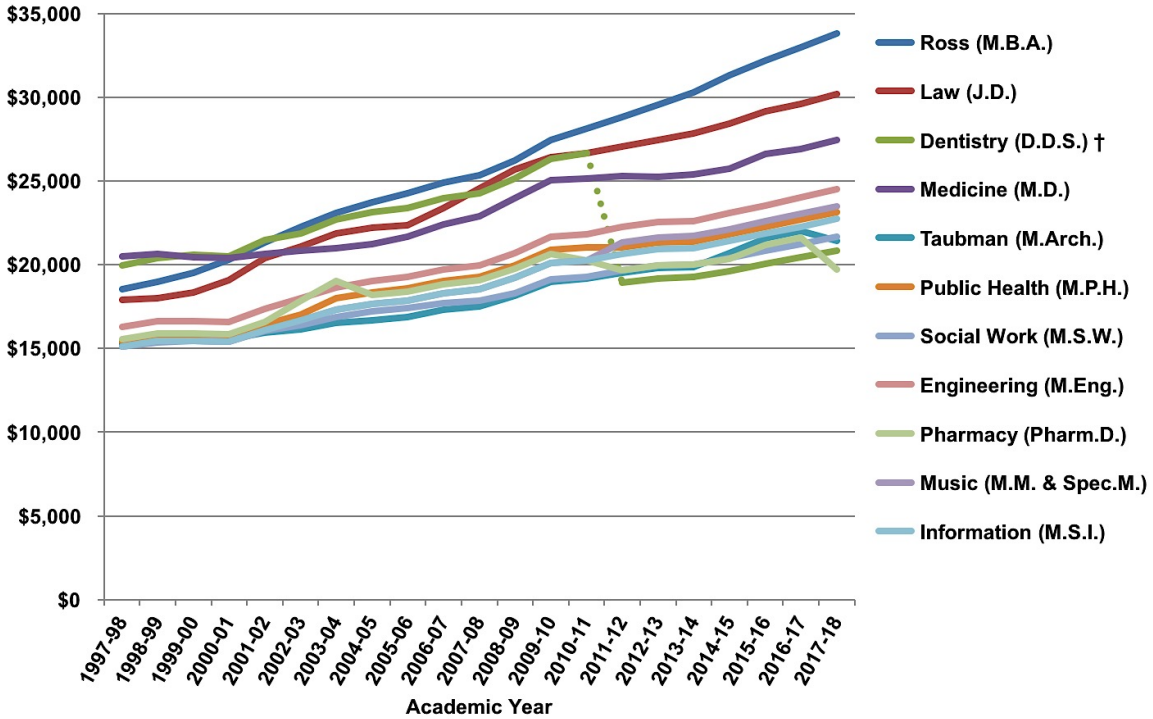
[4] Based on the FY2018 U.S. Consumer Price Index (as estimated by the U-M Research Seminar in Quantitative Economics).

## 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[5], In-State per Semester, FY1998-2018.




### 5.2.4 Graduate Professional Student Tuition and Required Fees, Adjusted for Inflation[5], Out-of-State per Semester, FY1998-2018.



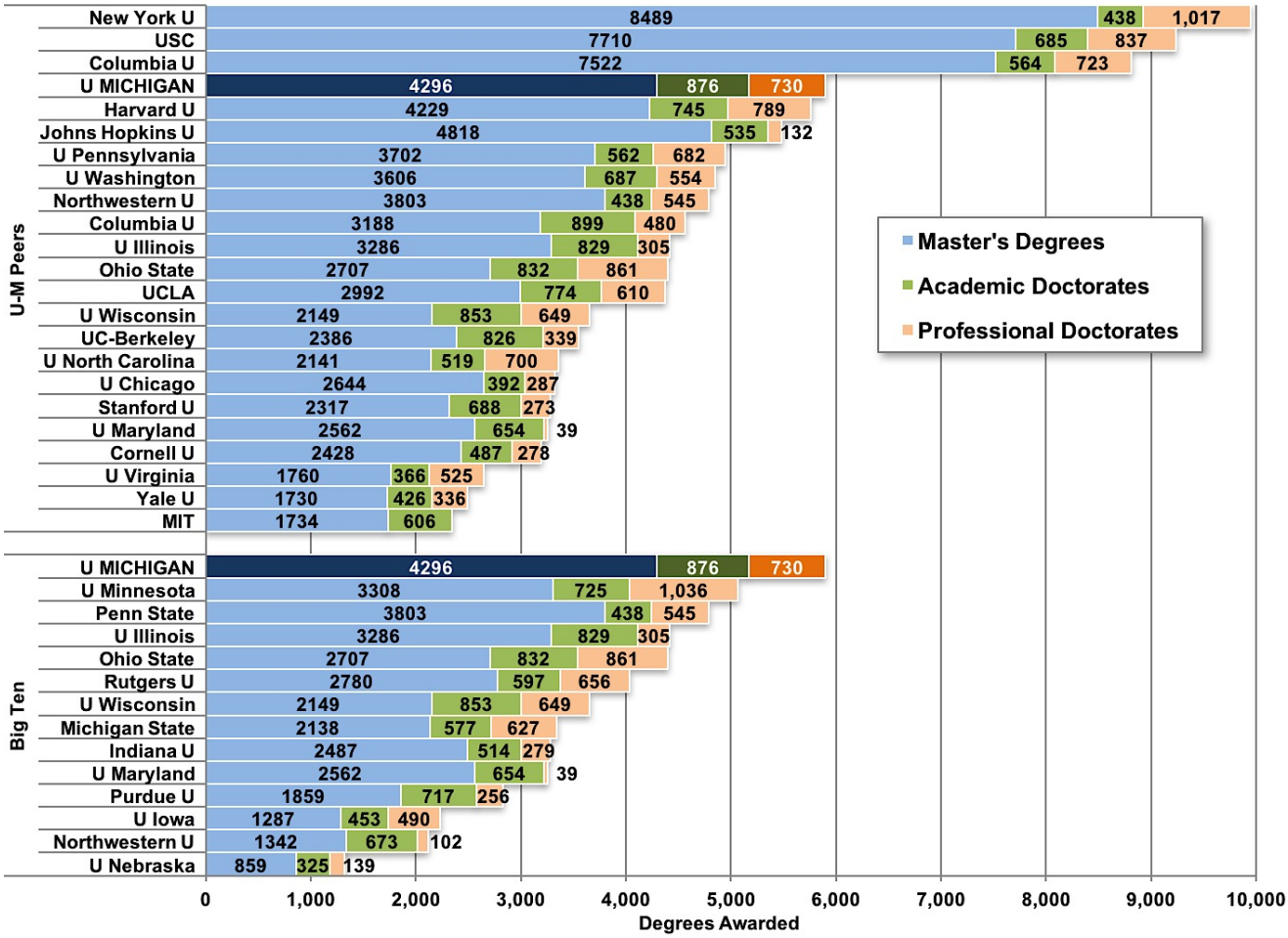

SOURCE: UM Registrar.

† 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 2018 U.S. Consumer Price Index (as estimated by the U-M Research Seminar in Quantitative Economics).

## The U-M awards more graduate academic and professional degrees than any other Big Ten institution.

### 5.3.1 Graduate Master's, Academic Doctorate and Professional Doctorate Degrees Awarded, Headcount for U-M, Peers[7] and Big Ten Universities, 2014-15



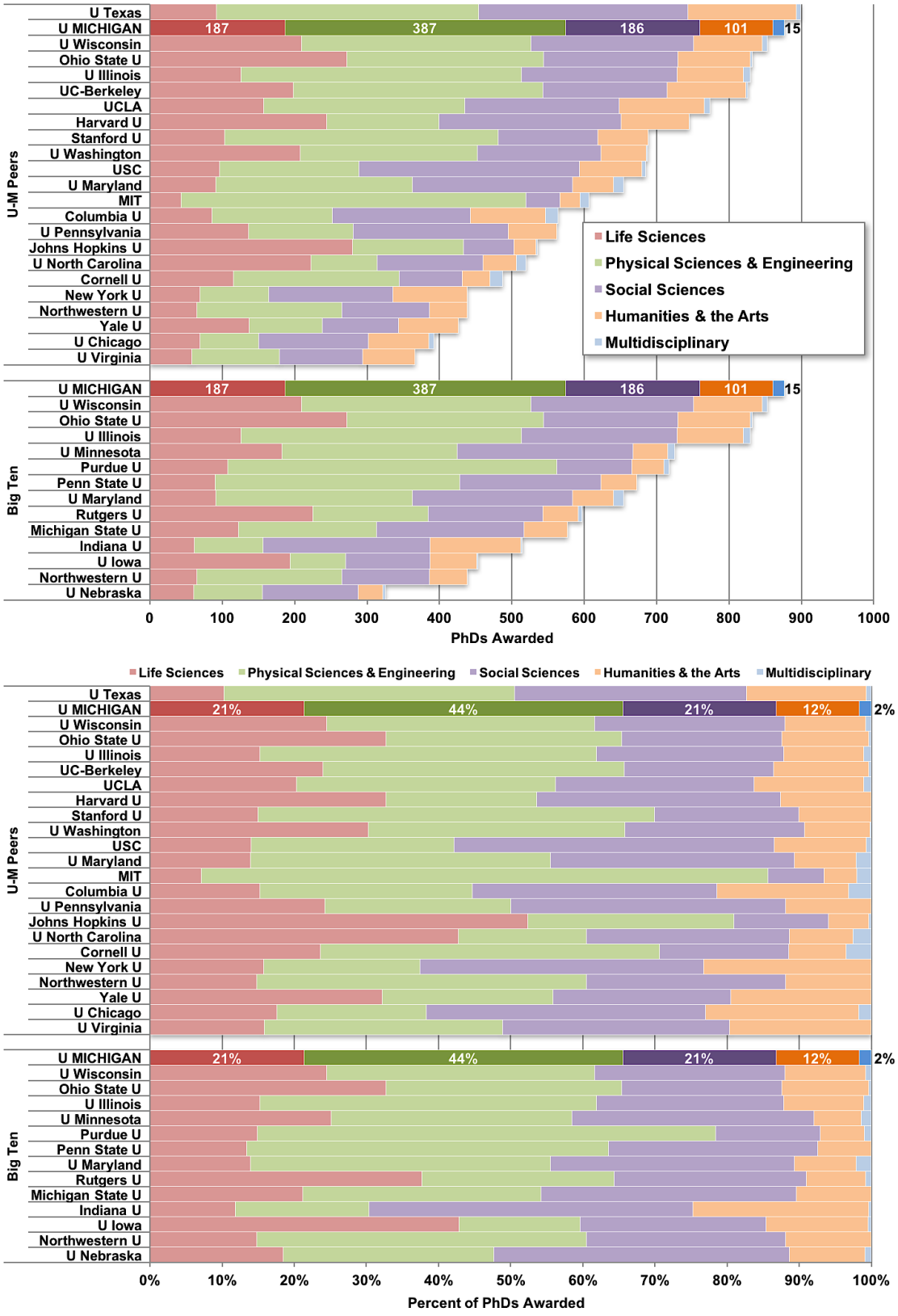

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

The University of Michigan grants the academic doctorates Ph.D. and D.Mus.Arts. and the professional doctorates M.D., J.D., D.D.S., Pharm.D., and D.N.P.

[6] 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 is a top producer of STEM Ph.D. graduates compared to its peers.

### 5.3.2 Ph.D. Degrees Awarded, Headcount (top) and Percent (bottom), by Discipline Group[7] for U-M, Peers and Big Ten Universities, 2014-15.




SOURCE: Integrated Postsecondary Education Data System (IPEDS).

[7] A list of disciplines assigned to each group is found in Appendix C.

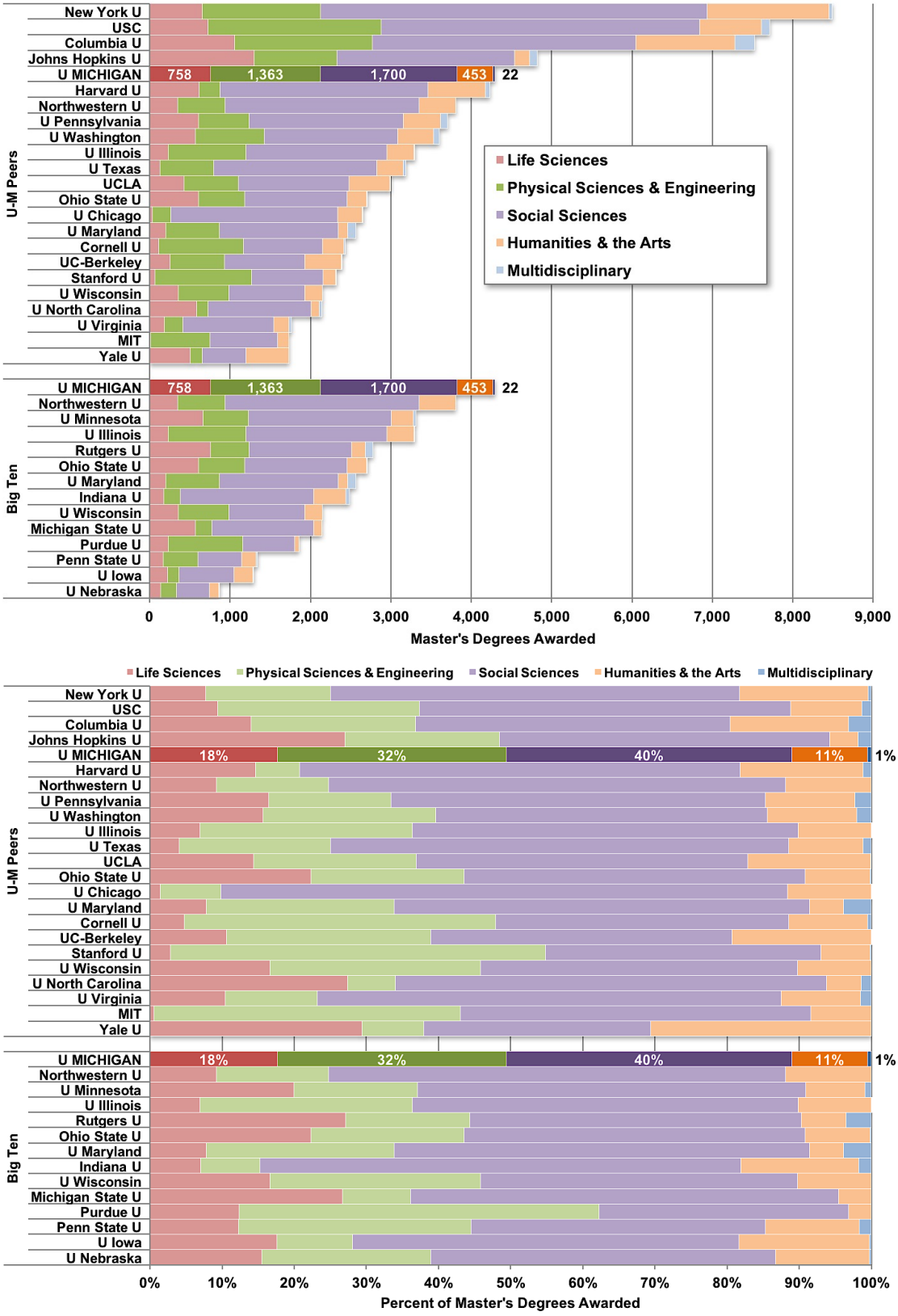
In the life sciences, physical sciences and engineering – also known as STEM fields (science, technology, engineering and mathematics) – U-M awarded 574 Ph.D. degrees in 2014-15, more than any of its peers for the academic year. The number of graduates in STEM fields is important because some analyses 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 awards for Charts 5.3.2, 5.3.3 and 5.3.4 at the peer and Big Ten universities to the same academic disciplines and professional categories as the U-M uses, even if other schools might 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.

## Half of U-M's Master's degrees are in STEM fields.

### 5.3.3 Academic Master's Degrees Awarded, Headcount (top) and Percent (bottom), by Discipline Group[9] for U-M, Peers and Big Ten Universities, 2014-15.




SOURCE: Integrated Postsecondary Education Data System (IPEDS).

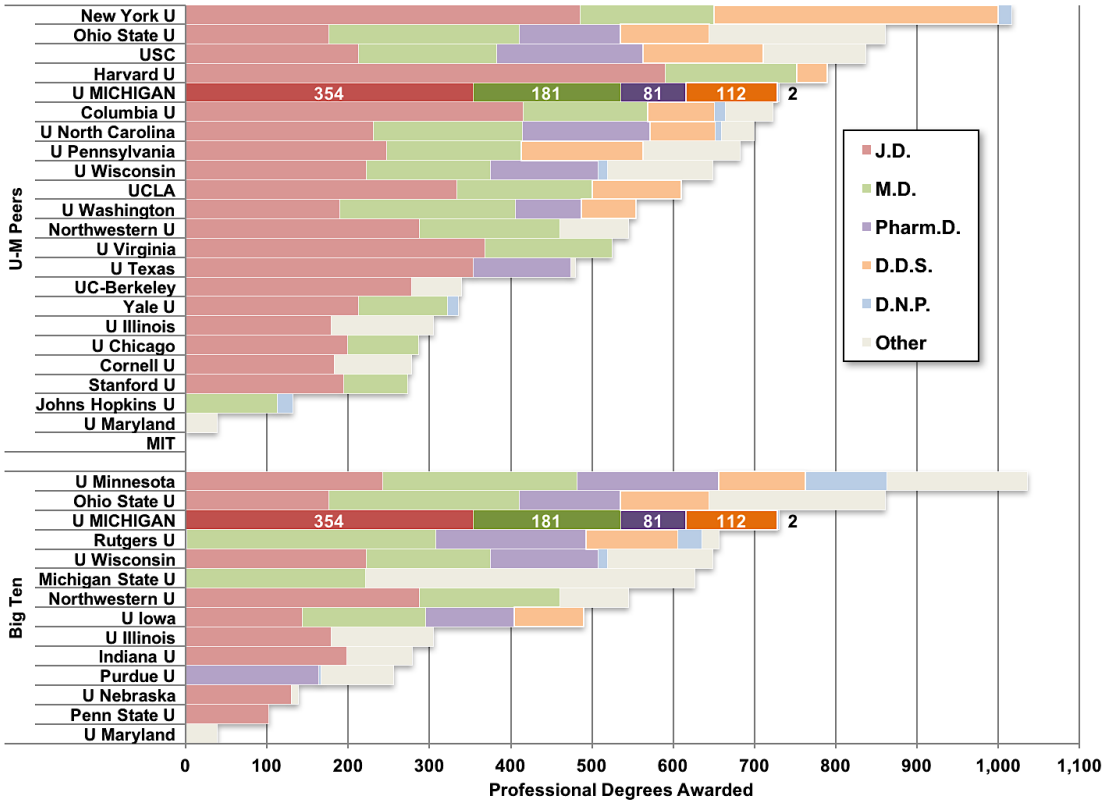
[9] A list of disciplines assigned to each group is found in Appendix C.

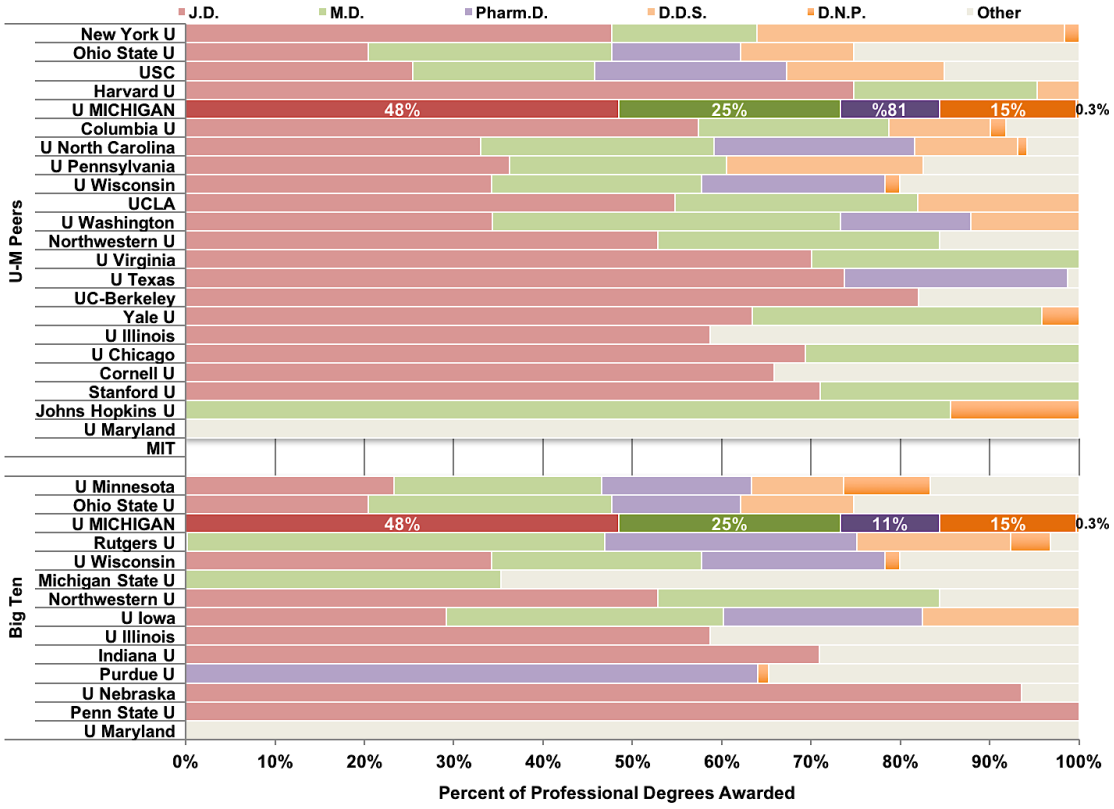
Among the academic Master's degrees awarded in 2014-15, 2,121 U-M students graduated in the sciences, technology, engineering or mathematics. Among U-M's peers, only Columbia (2,770) awarded a higher number of Master's degrees in these fields.

To keep the comparisons consistent between U-M and the other schools included here, we assigned all degree awards for Charts 5.3.2, 5.3.3 and 5.3.4 at the peers and Big Ten universities to the same academic disciplines and professional categories as the U-M uses, even if other schools might assign the programs differently on their campuses.

## The U-M grants a large number of professional degrees compared to most peer universities.

### 5.3.4 Professional Degrees Awarded, Headcount (top) and Percent (bottom), by Program for U-M, Peers[10] and Big Ten Universities, 2014-15.




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.

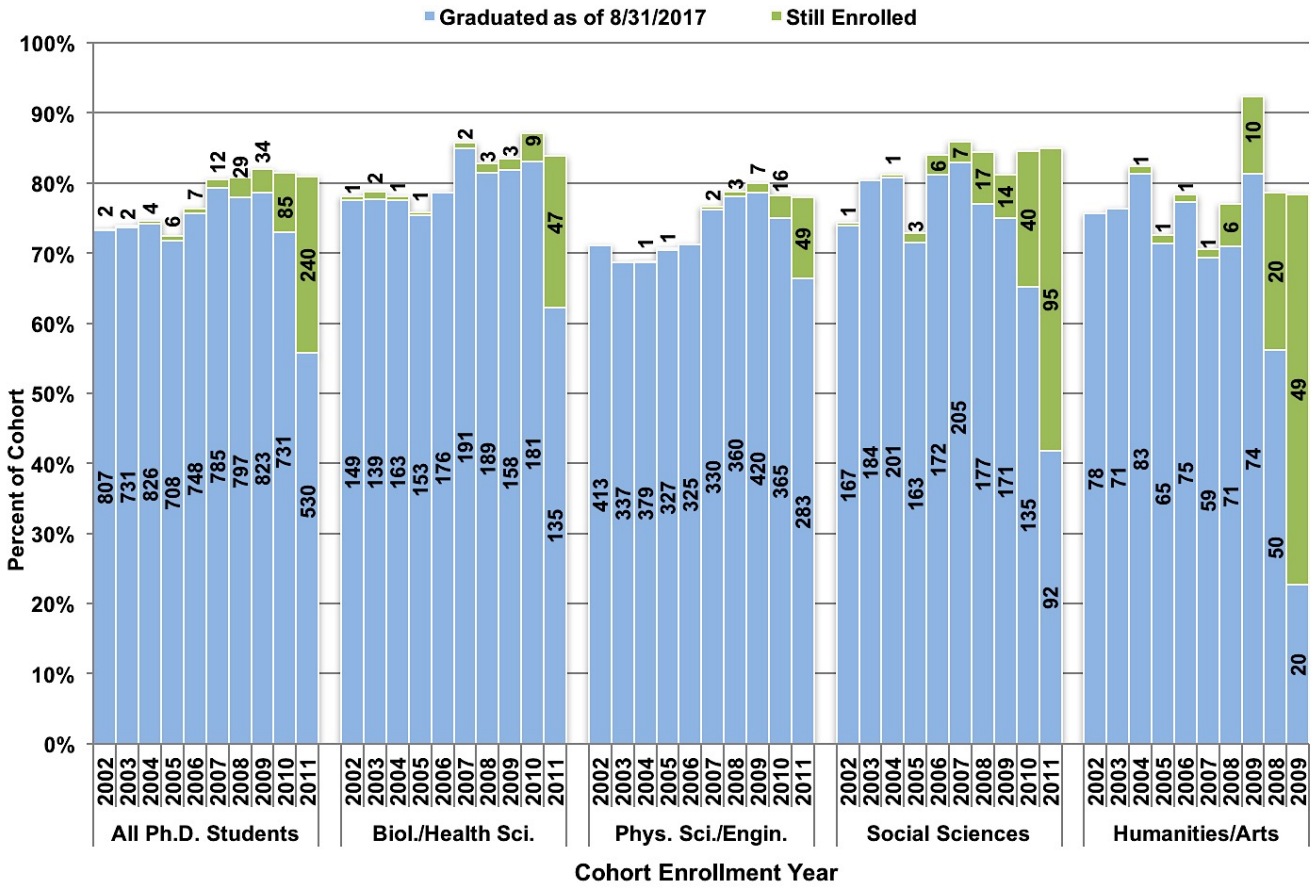
The U-M awards degrees in five professional programs: Law, Medicine, Dentistry, Pharmacy, and Nursing Practice (D.N.P.).

The "Other" category includes professional degrees not offered by the U-M, such as in Veterinary Medicine, Optometry, Osteopathic Medicine, Communication Disorders, and a few other specialized health areas.

To keep the comparisons consistent between U-M and the other schools included here, we assigned all degree awards for Charts 5.3.2, 5.3.3 and 5.3.4 at the peers and Big Ten universities to the same academic disciplines and professional categories as the U-M uses, even if other schools might assign the programs differently on their campuses.

**The profile of U-M doctoral student graduation rates in recent years is fairly consistent across the disciplines. Overall, 75 percent of students who enrolled in a doctoral program on the Ann Arbor campus between Spring term 2002 and Winter term 2010 have graduated with a Ph.D.**

### 5.4.1 Academic Doctoral Completion Rates by Discipline Group[11], Enrollment Cohorts 2002-11.




SOURCE: Horace H. Rackham School of Graduate Studies.

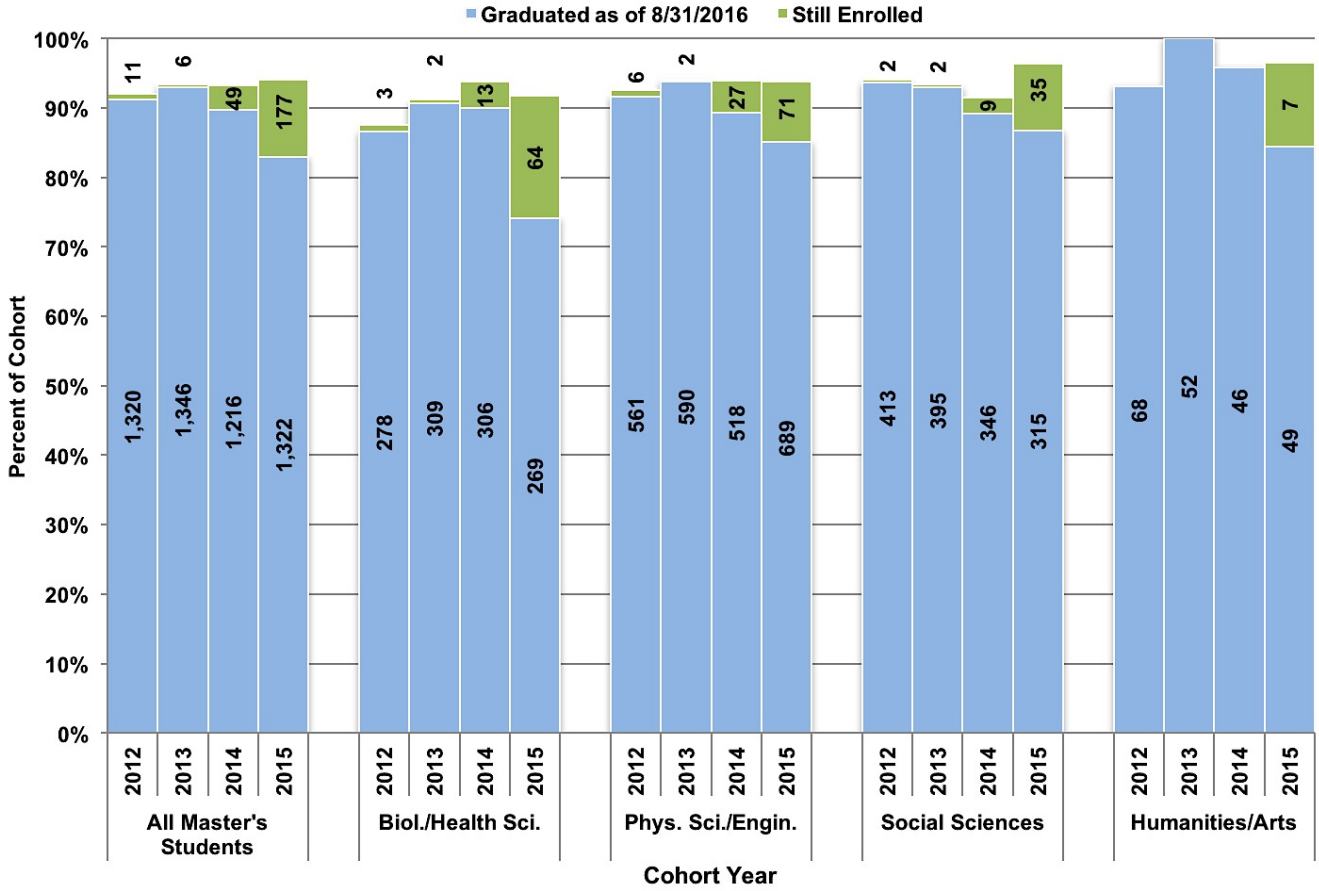
This chart examines a range of doctoral entry cohorts and shows the number and percent of each cohort that have completed their degrees, or are still enrolled, as of August 31, 2017. Furthermore, a recent report by the Rackham School of Graduate Studies shows that 79 percent of Ph.D. students who first enrolled between 2005 and 2010 have completed their doctoral degrees or are on track to do so in a timely manner.[12]

[11] A list of disciplines assigned to each group is found in Appendix C.

[12] "Changes at Rackham help boost doctoral degree completion rate," *University Record*, May 28, 2015.

## Ninety-one percent of students who enrolled in U-M academic Master's programs on the Ann Arbor campus from Spring term 2012 through Winter term 2015 have completed their degrees.

### 5.4.2 Academic Master's Completion Rates by Discipline Group[13], Enrollment Cohorts 2012-15



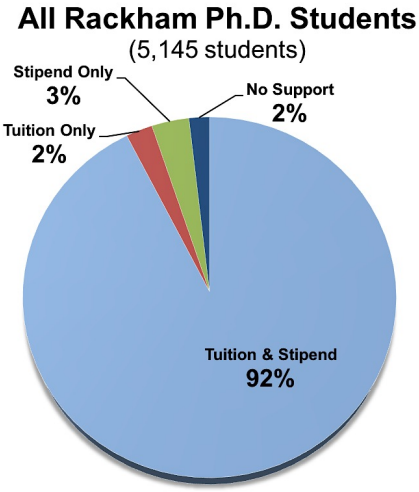

SOURCE: Horace H. Rackham School of Graduate Studies.

U-M Master's programs usually require about two years to complete, so the average in the headline does not take into account the completion counts for the Master's students who first enrolled in the Fall 2015 term.

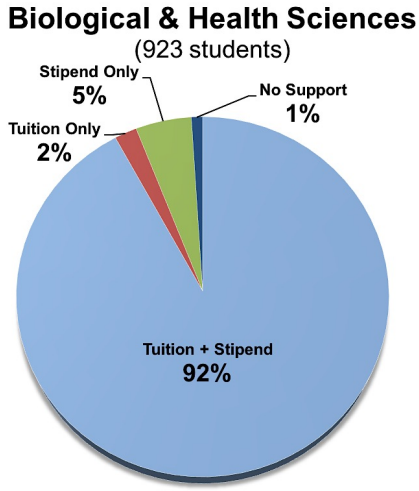
[13] A list of disciplines assigned to each group is found in Appendix C.

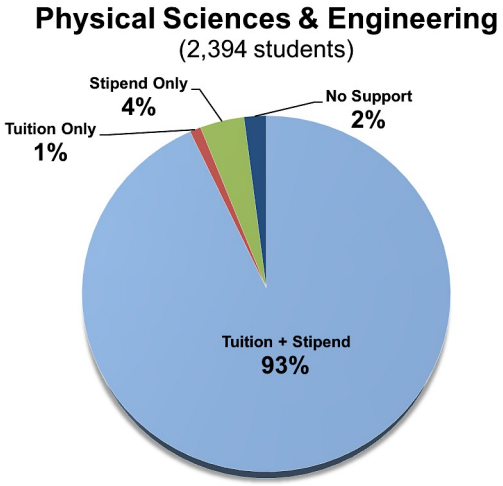
## Ninety-eight percent of Rackham graduate students pursuing Ph.D. degrees receive financial support from the University.

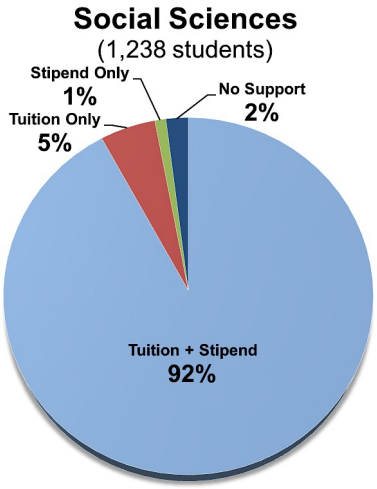
### 5.5.1 Funding Support for Rackham Ph.D. Students[14], 2016-17.

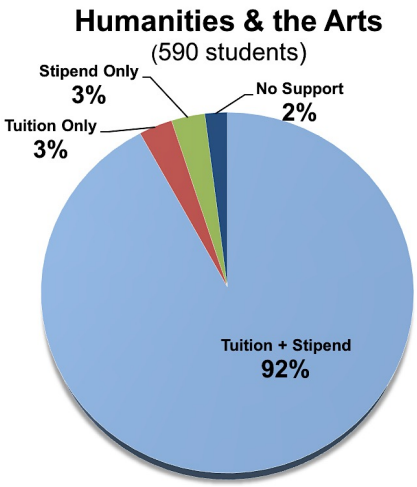



In all fields of study, a large fraction of academic Ph.D. students receives both tuition grants and a stipend to help cover living expenses. In many cases, students competed successfully for external funding and did not need additional financial support. Stipends may be paid as part of an appointment as a Graduate Student Instructor (GSI), Graduate Student Research Assistant (GSRA), Graduate Student Staff Assistant (GSSA), or as a fellowship.



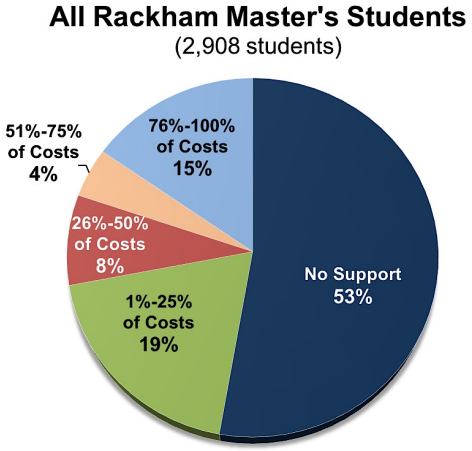

SOURCE: Horace H. Rackham School of Graduate Studies Student Funding Reports.

Percentages might not sum to 100% due to rounding.

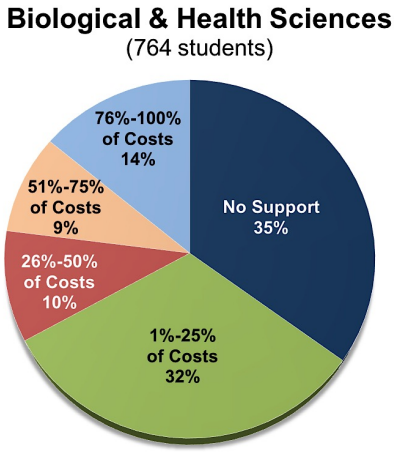
[14] A list of disciplines assigned to each group is found in Appendix C.

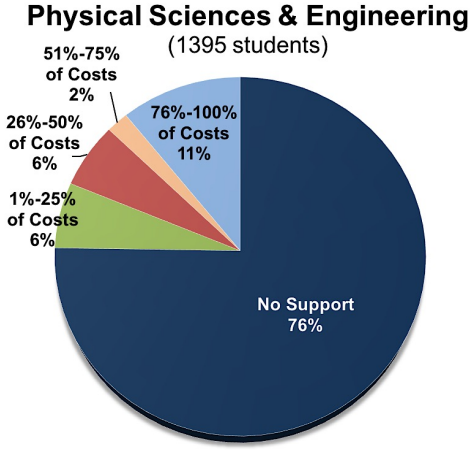
## Financial support provided to Rackham students pursuing Master's degrees varies by field of study.

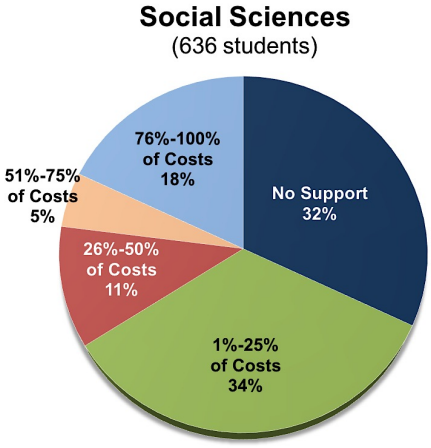
### 5.5.2 Funding Support for Rackham Master's Students[15], 2016-17.

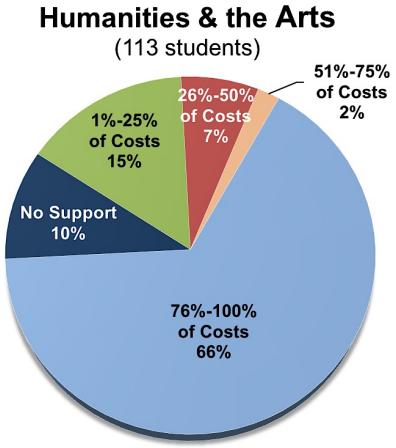



The five categories of support (No Support, and covering 1%-25%, 26%-50%, 51%-75%, 76%-100% of costs) represent the fraction of the total calculated cost of attendance provided as tuition grants and stipends to students enrolled in Master's programs. Loans that Master's students may acquire are not included in these calculations.



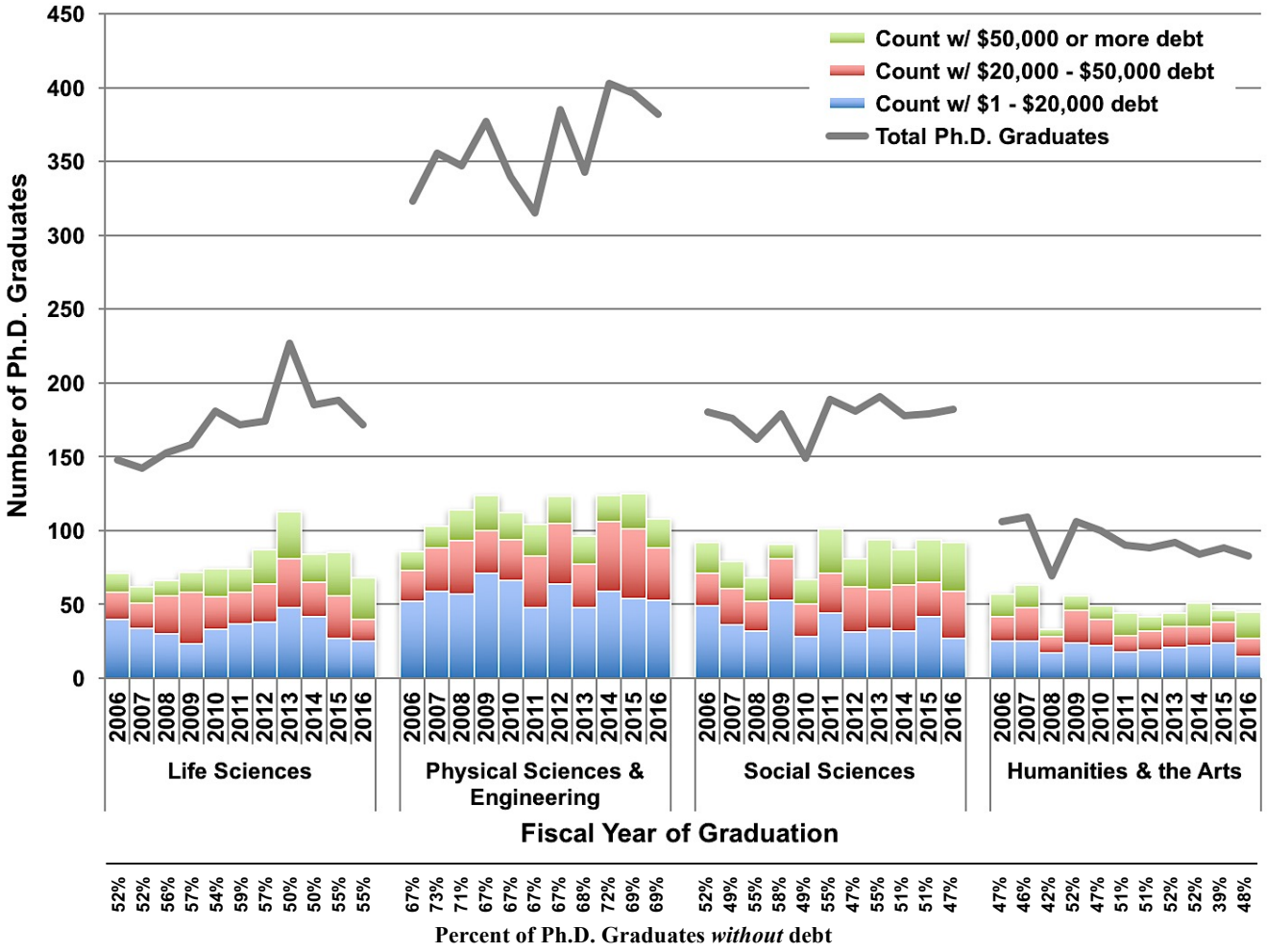

SOURCE: Horace H. Rackham School of Graduate Studies Student Funding Reports.

Percentages might not sum to 100% due to rounding.

[15] A list of disciplines assigned to each group is found in Appendix C.

## Three-fifths of U-M Ph.D. students graduate without *any* student loan debt.

### 5.6.1 Self-reported Cumulative Undergraduate and Graduate Debt by U-M Ph.D. students at Graduation, by Discipline Group[16] for Domestic Students, FY2006-16.




SOURCE: NSF/NIH/USED/USDA/NEH/NASA, Survey of Earned Doctorates.

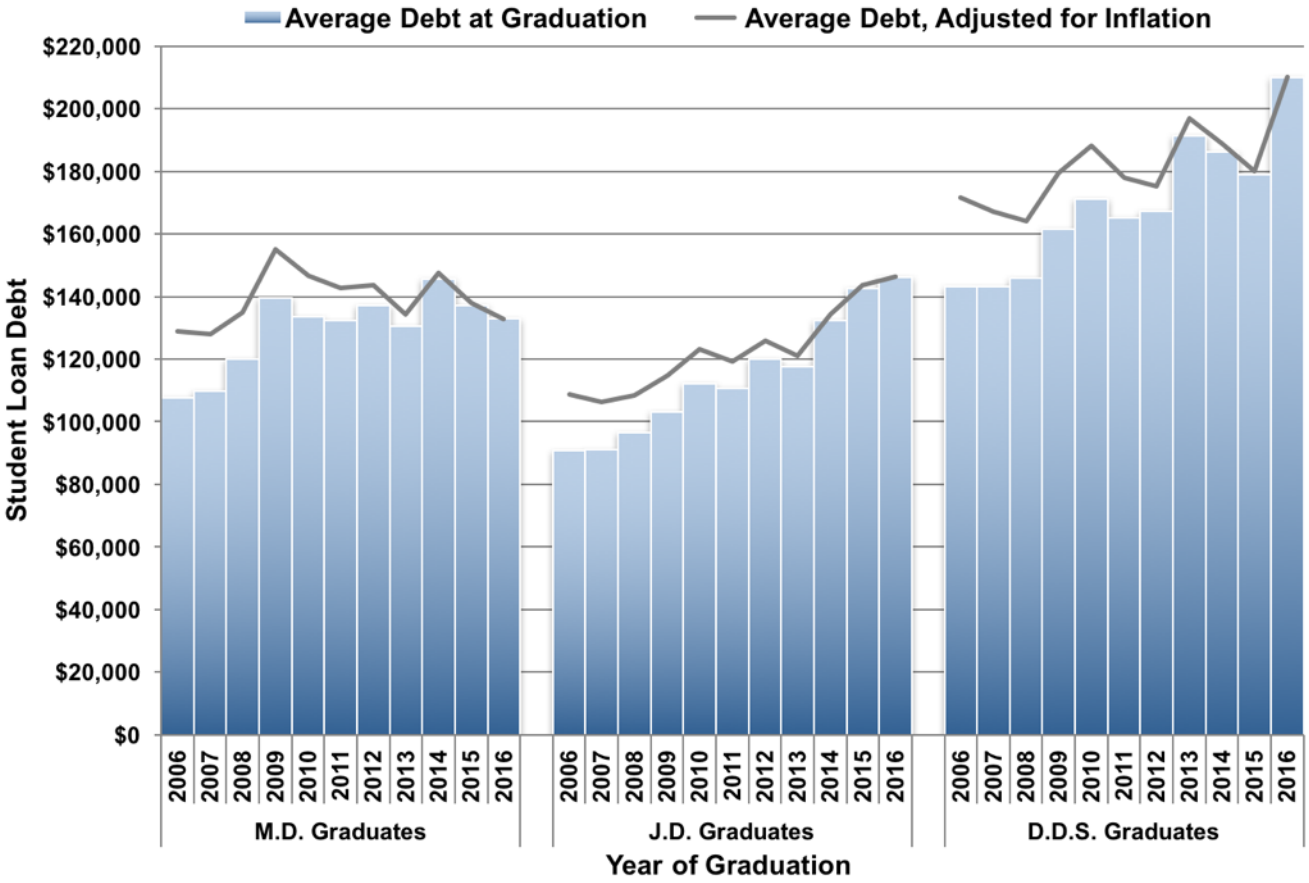
Fewer than half (40% over the time period shown) of University of Michigan Ph.D. students graduate with student-loan debt that was acquired over the course of their undergraduate and graduate careers. The aggregate averages of Ph.D. graduates with debt by discipline groups vary: Life Sciences (45%), Physical Sciences & Engineering (31%), Social Sciences (49%), Humanities & the Arts (52%).

The issue of student debt remains important to the University of Michigan and higher education overall. 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.

[16] A list of the disciplines assigned to each category is in Appendix C.

**After adjusting for inflation[17], the level of student loan debt for M.D. graduates is high, but somewhat stable over the last several years. D.D.S. graduates have exhibited an increase in total debt after a three-year drop, while debt has steadily increased for J.D. graduates.**

### 5.6.2 Graduate Professional Students' Self-reported Debt at Graduation, by Program, 2006-16.




SOURCE: School Dean or Financial Aid Office.

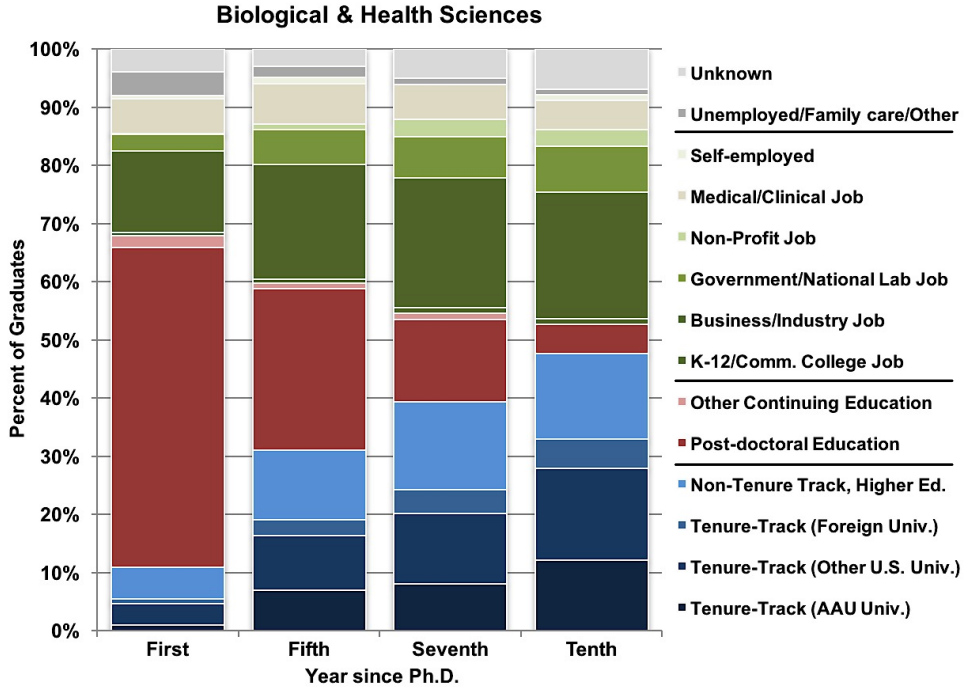
Between 80 and 90 percent of professional degree graduates have student loan debt when they complete their programs. For all programs, the debt averages are calculated based only on students with student-loan debt.

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).

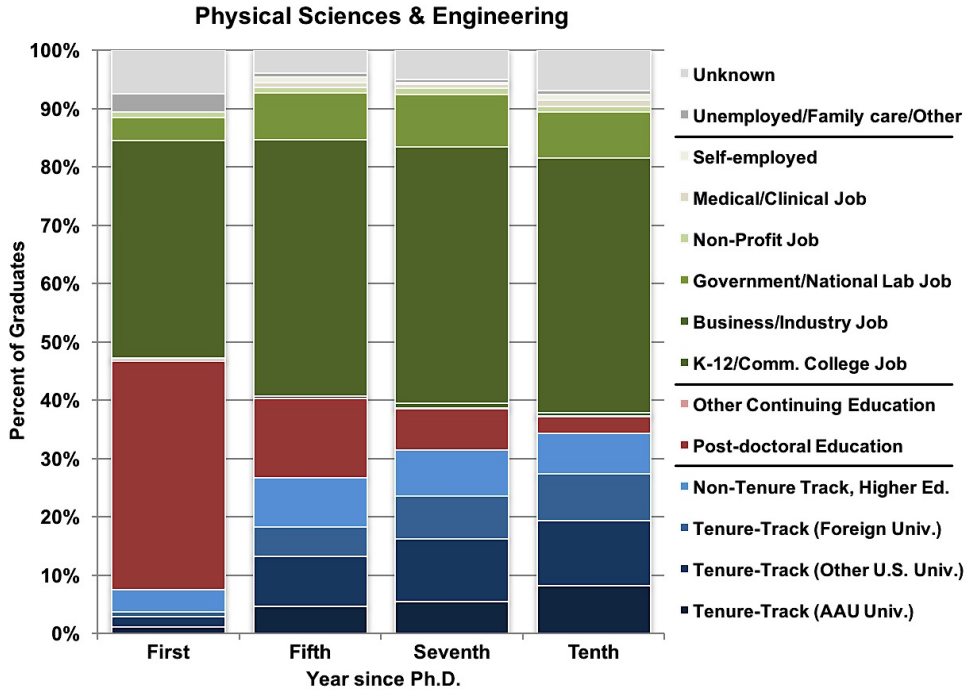
[17] Based on the FY2016 U.S. Consumer Price Index.

## 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 to move more toward higher education positions.

### 5.7 Placement Outcomes for U-M Ph.D. Students, by Discipline Group[18], FY2004-17.




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.



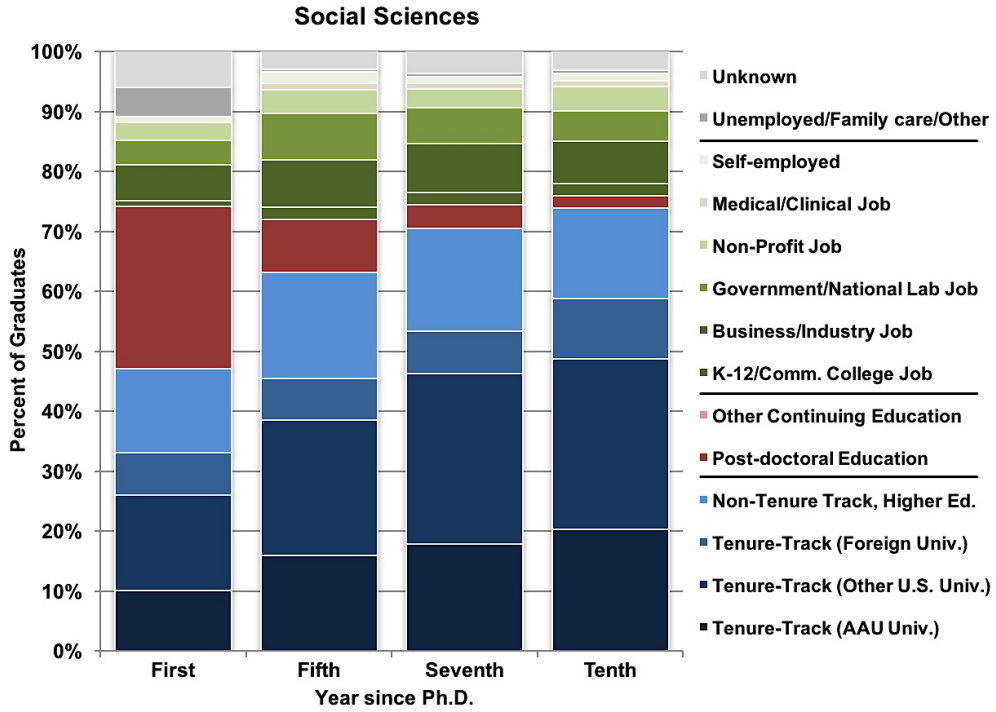

About the same number of academic Ph.D. graduates in the physical sciences and engineering initially take a position outside of academia as enter post-doctoral training. After five or more years after graduation, they are employed in industry, government or the non-profit sector, or entering academic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

SOURCE: Survey of Academic Departments by Rackham Graduate School.

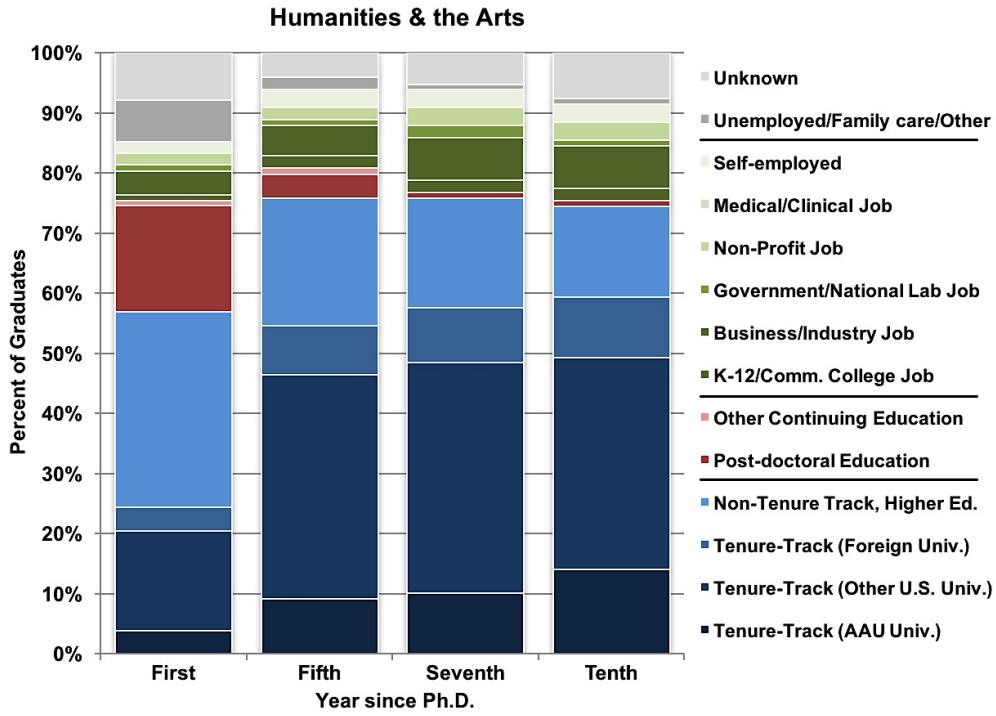
Blue shades represent higher education positions, reds indicate post-doctoral or other post-graduate training, greens are positions outside of higher education, and the grays represent unknown activity or not currently employed.

[18] 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[19], FY2004-17 (continued).




More than two-fifths of academic Ph.D. graduates in the social sciences enter a higher education position during the first year following graduation, with about two-thirds of these on the tenure-track. By five years after graduation, about half of U-M's social science Ph.D. graduates have tenure-track positions, and another 20 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. About one-fourth of humanities and arts Ph.D. graduates are on the tenure track initially, and the fraction doubles by ten years post-graduation.

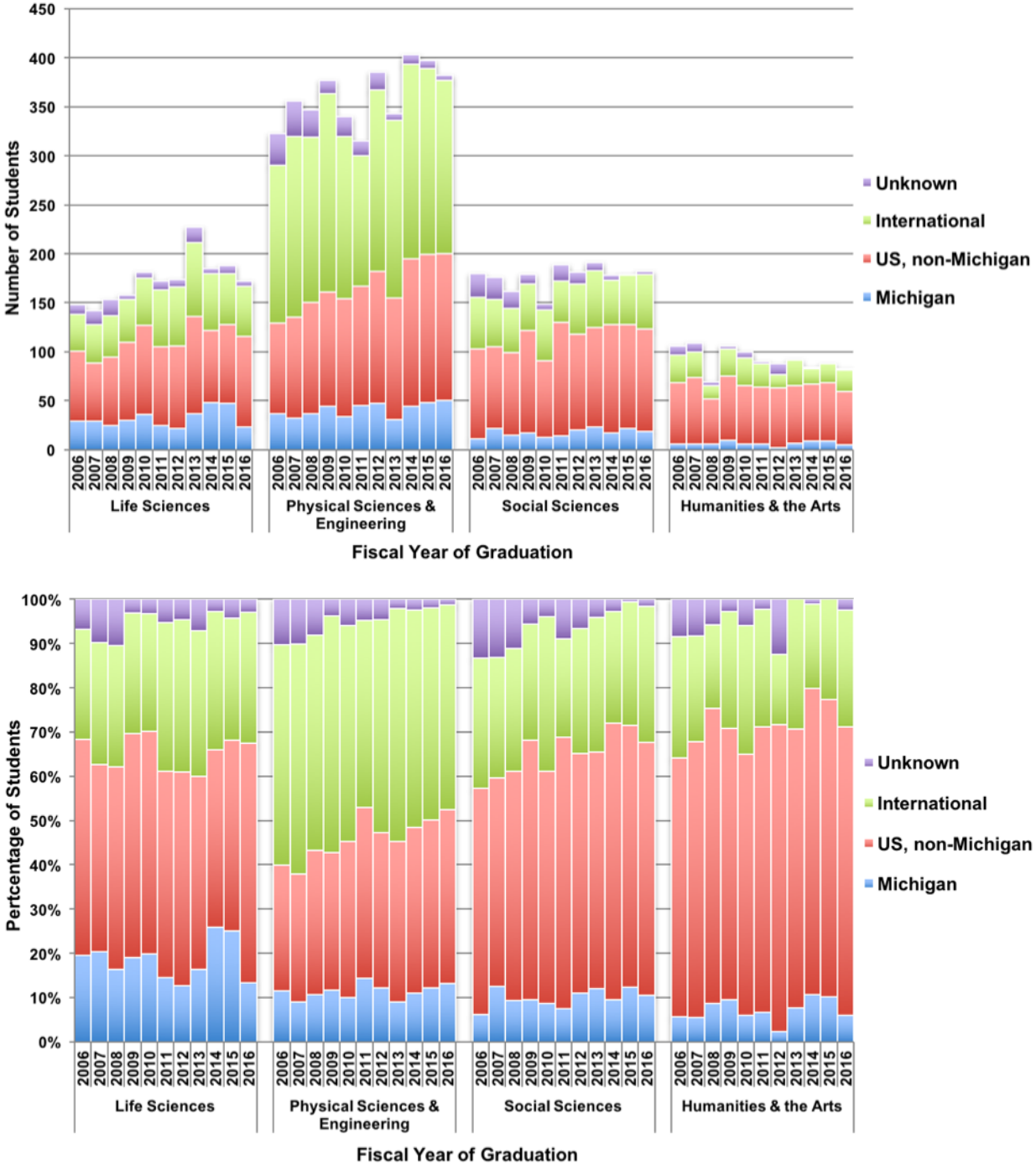
SOURCE: Survey of Academic Departments by Horace H. Rackham School of Graduate School.

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.

[19] A list of disciplines assigned to each group is found in Appendix C.

## U-M Ph.D. 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[20], FY2006-16.




SOURCE: NSF/NIH/USED/USDA/NEH/NASA, Survey of Earned Doctorates.

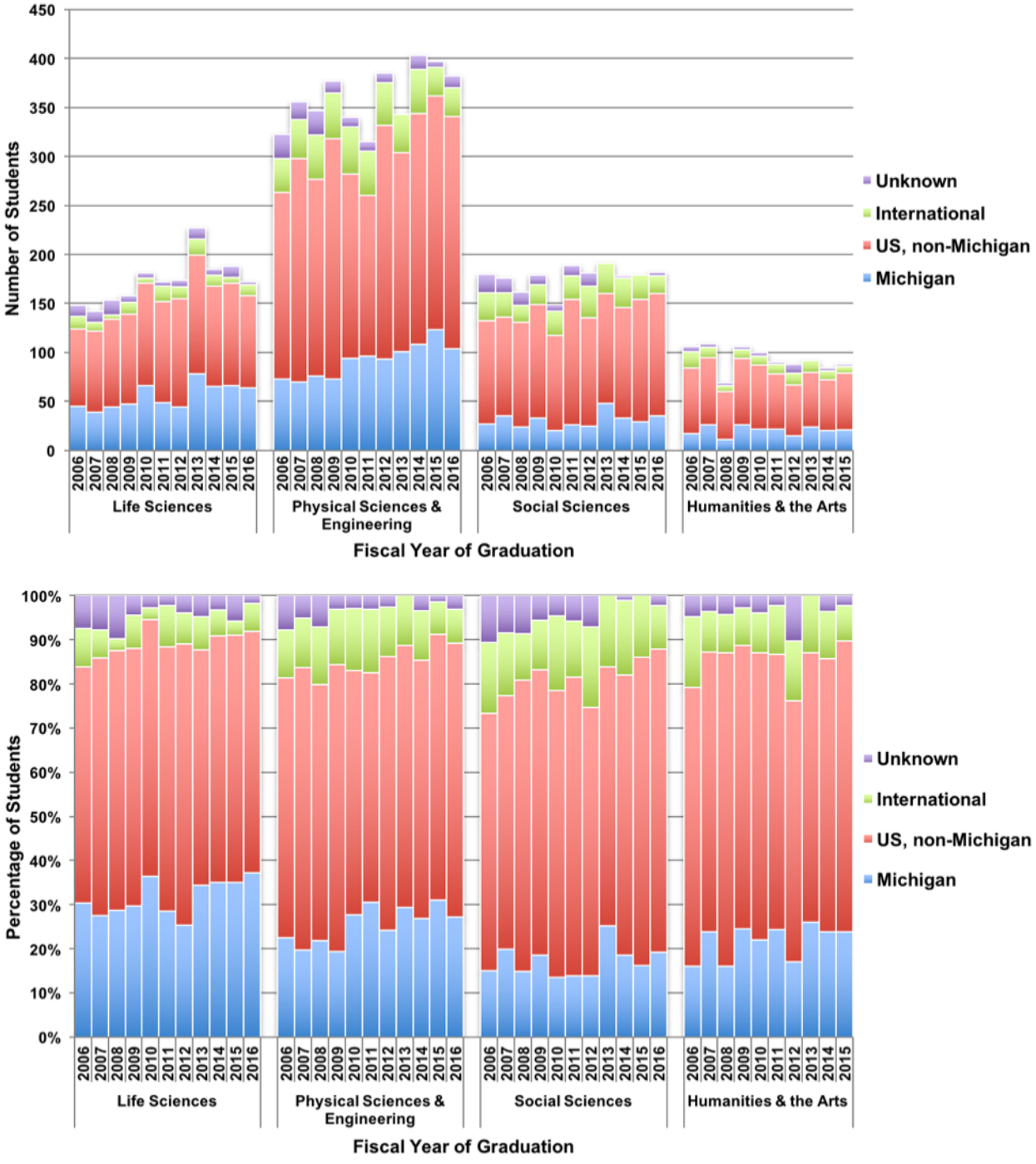
The large number of international students enrolled in physical science and engineering Ph.D. programs is not a surprise, given the attractiveness of these kinds of programs. According to a 2012 National Science Foundation report, international students comprise 30 percent of U.S. graduate science and engineering programs[21]. For the decade displayed here, international students make up 49 percent of total enrollment in U-M physical science and engineering Ph.D. programs.

[20] A list of disciplines assigned to each group is found in Appendix C.

[21] InfoBrief, National Center for Science and Engineering Statistics, May 2012, NSF 12-317.

**A comparison of geographic origins (5.8.1) and destinations (below) of U-M Ph.D. 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[22], FY2006-16.

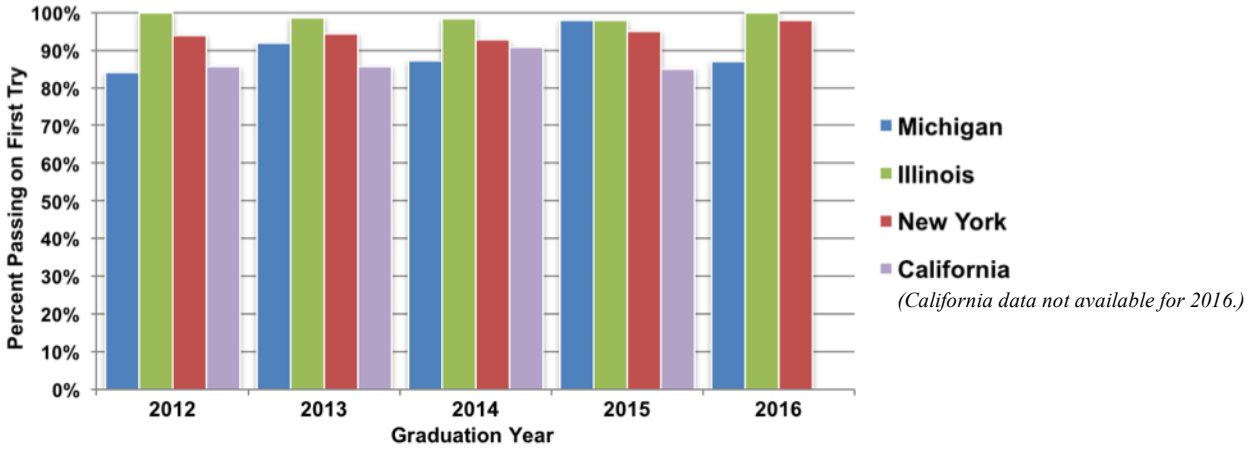



SOURCE: NSF/NIH/USED/USDA/NEH/NASA, Survey of Earned Doctorates.

[22] 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.

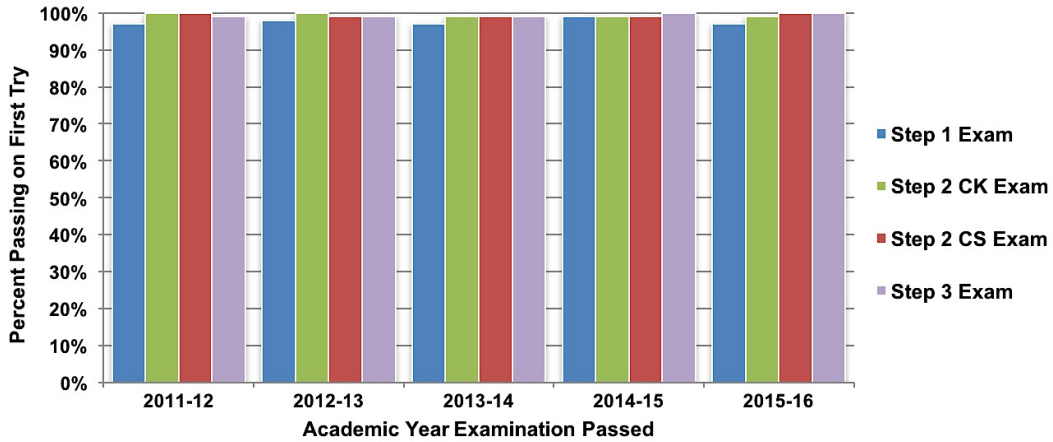
### 5.9.1 Pass Rates for Four States' Bar (Law) Examinations by U-M Law School Graduates, 2012-16.




*(California data not available for 2016.)*

SOURCE: Registrar, U-M Law School

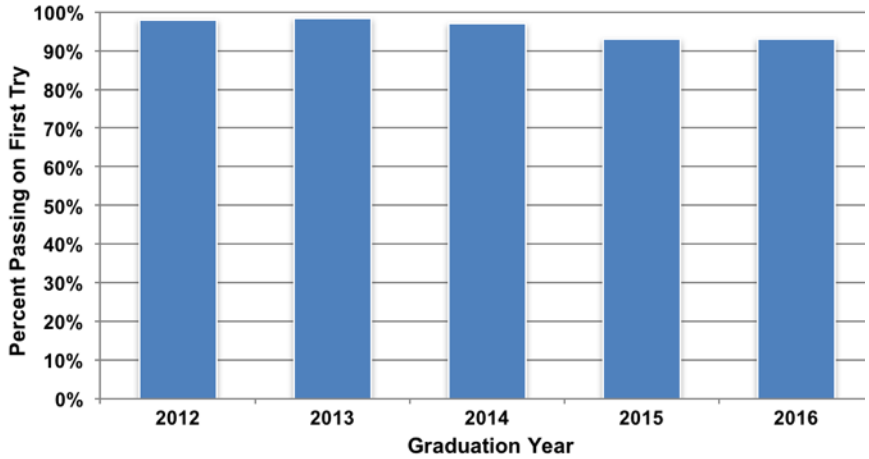
### 5.9.2 Pass Rates for U.S. Medical Licensing Examination by U-M Medical Students, FY2012-16.




SOURCE: Registrar, Medical School.

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.

### 5.9.3 Pass Rates for Northeast Regional Board Examination by U-M D.D.S. Students, 2012-16.




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: School of Dentistry.

# 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. Likewise, the University seeks the highest level of performance and productivity from its staff members in support the institution's academics, research and service.

## Overview

The faculty headcount at the University of Michigan is 7,332, while the total of faculty full-time equivalents (FTEs) is 6,294. Instructional appointments comprise 3,514 FTEs, and another 2,780 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 32 members of the National Academy of Sciences, 31 members of the National Academy of Engineering, 60 members of the National Academy of Medicine and 84 members of the American Academy of Arts and Sciences. In addition, many faculty members have been awarded a MacArthur Foundation Fellowship (aka "genius" awards), Emmy and Grammy awards, National Medal of Art, 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. They 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 38 percent of the staff is 50 or older, whereas 36 percent fell in that age range as of Fall 2007. U-M Human Resources estimates that 12.6 percent of the current staff will retire by the end of 2022.

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

HR Data Reports (hr.umich.edu/working-u-m/management-administration/records-management-data-services/hr-data-reports)

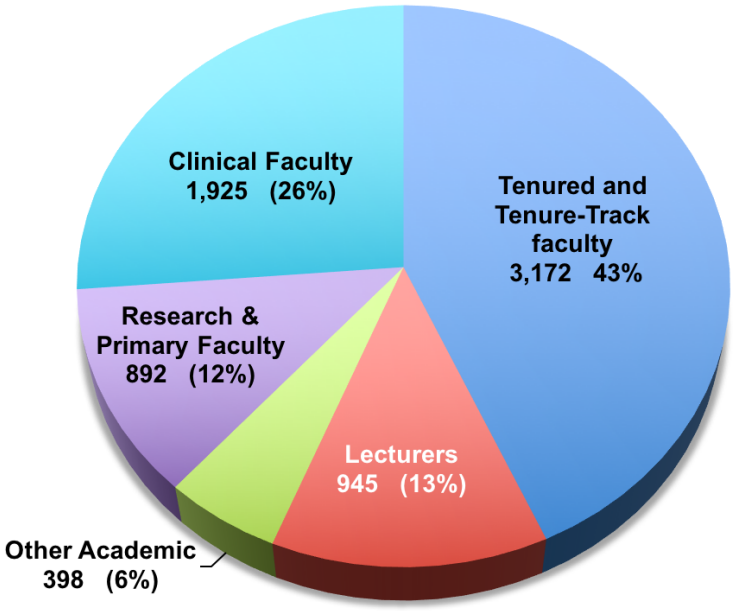
Other chapters provide information related to faculty activity, including indicators of the teaching workload (Chapter 8) and research activity (Chapter 9). The quality of the faculty influences the U-M's placement in many national and international rankings (Chapter 12). Diversity indicators for the faculty, staff and students are reported in Chapter 7.

✦ ***Chart updated since the September 2017 edition.***

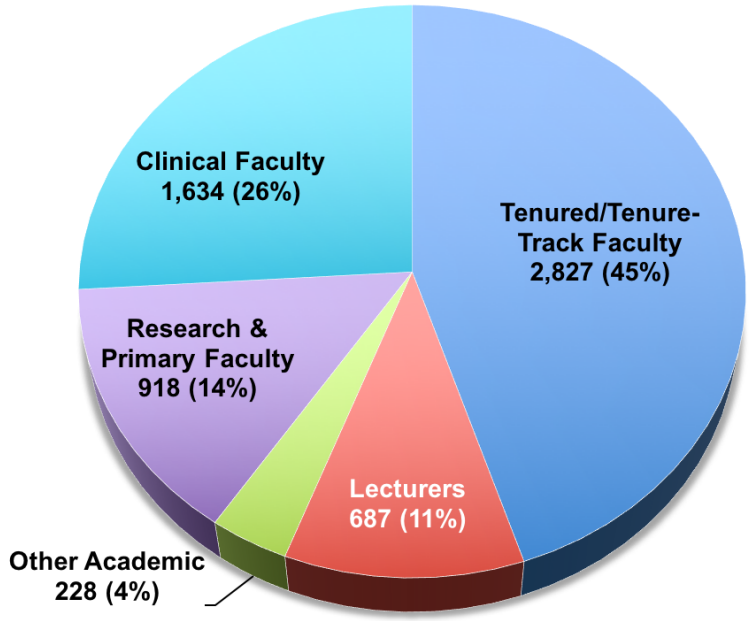
## Charts in Chapter 6

## More than half of the academic workforce (tenured/tenure-track faculty and lecturers) is involved in instruction, whether you measure by headcount or full-time equivalents.

### 6.1.1 Academic Workforce, Headcount by Title, Fall 2017.




### 6.1.2 Academic Workforce, Full-Time Equivalents by Title, Fall 2017.




SOURCE: U-M Human Resources Data

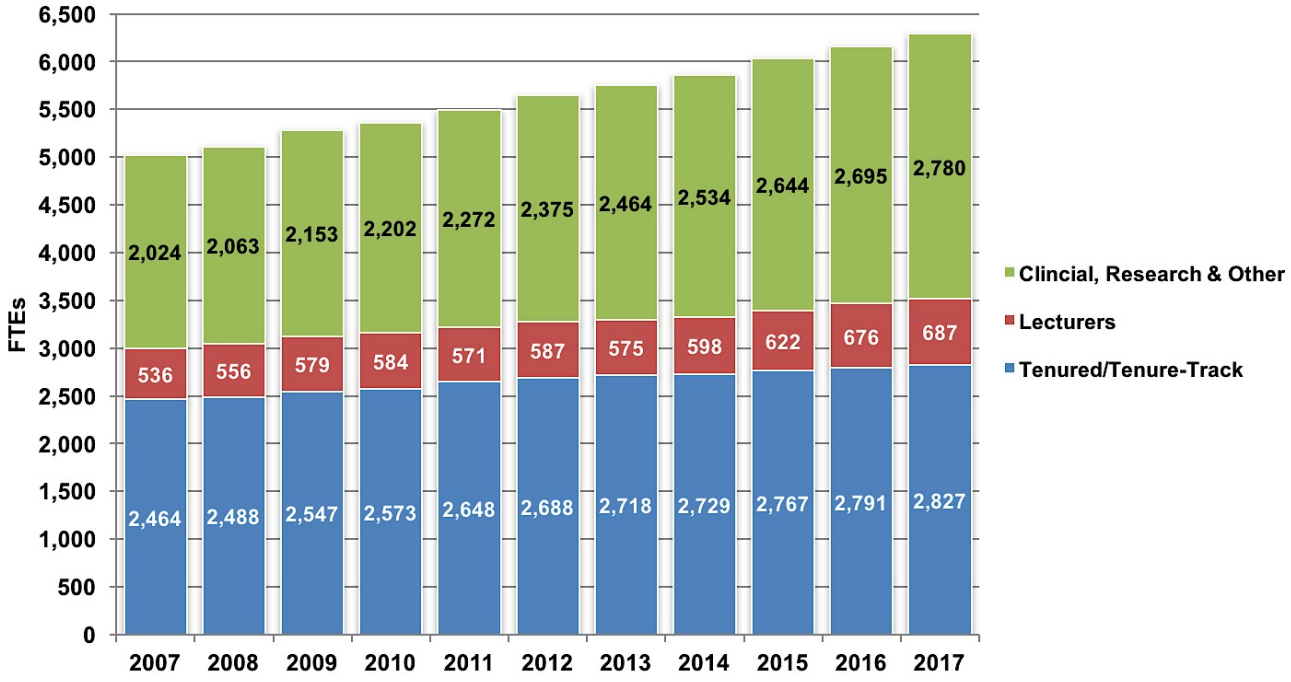
The total academic workforce is 7,332 by headcount and 6,294 by full-time equivalents (FTEs), based on data collected on November 1 each year. The difference is due to several factors: some individuals hold a fractional academic appointment and a fractional staff appointment, for instance, or may work 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 faculty members also play a role in instruction. Research and primary faculty include individuals involved in research, mentoring of graduate students and research fellows, and those who serve as librarians, curators, and archivists.

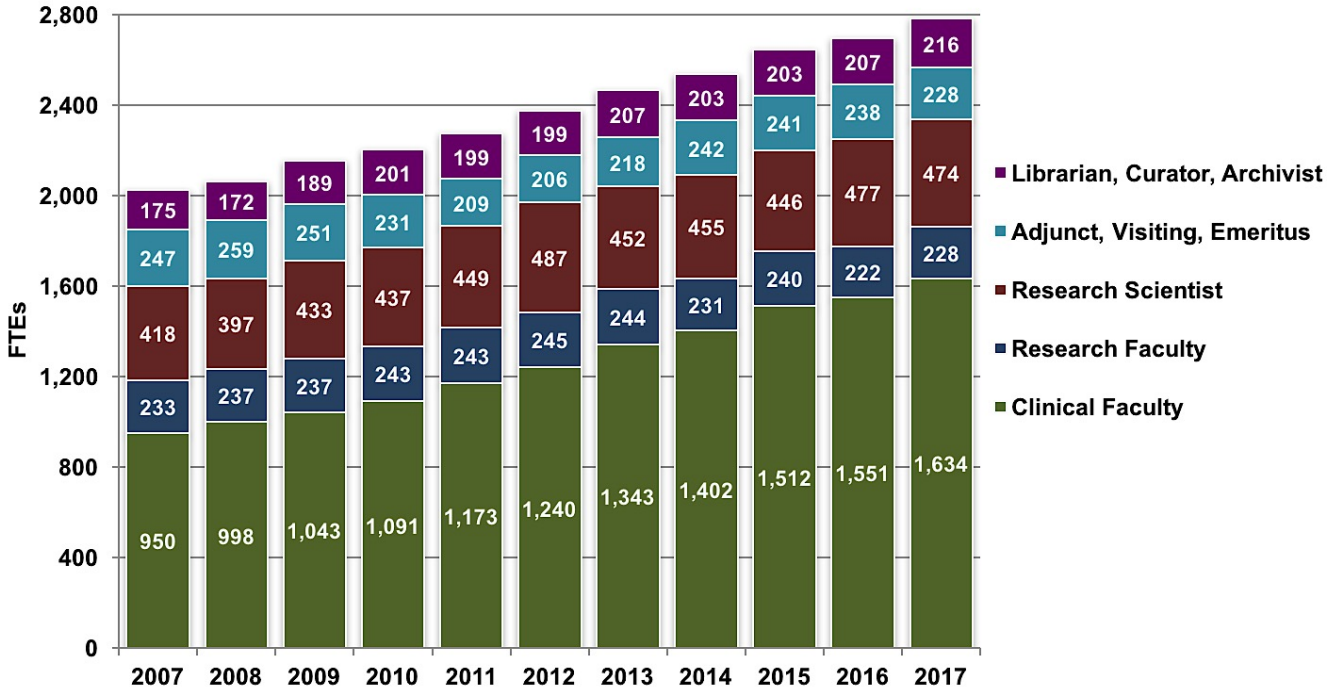
"Other Academic" includes not-on-tenure-track faculty, supplemental instructional faculty (adjunct/visiting), supplemental research faculty (adjunct/visiting), and emeritus faculty.

**The tenured/tenure-track faculty numbers have grown by 399 FTE between 2006 and 2016, and the number of clinical faculty (see 6.1.4) has nearly doubled over the same period.**

### 6.1.3 Academic Workforce by Full-Time Equivalents, 2007-17.




### 6.1.4 Detail for "Other Academic," by Full-Time Equivalents, 2007-17.

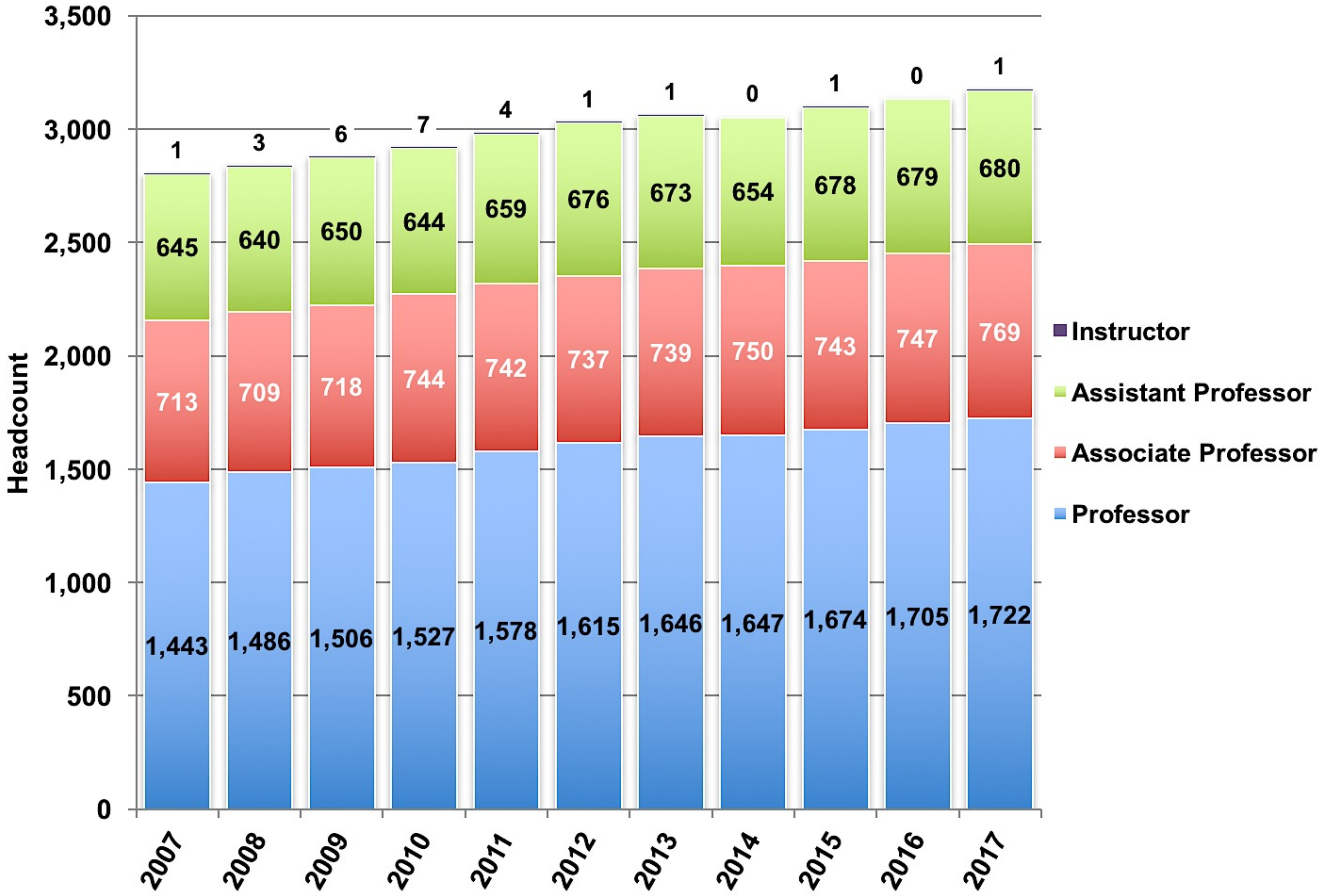



SOURCE: U-M Human Resources Data

The academic group growing most rapidly is the clinical faculty. The bulk of this group is comprised of faculty-physicians who teach and 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 2,802 in Fall 2007 to 3,172 in Fall 2017, an increase of 370 over the decade.

### 6.2.1 Tenured/Tenure-Track Faculty, Headcount by Title, Fall 2007-17.




SOURCE: U-M Human Resources Data

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 identified[2].

In 2010, the central administration also funded an additional 50 new faculty positions[3] 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.

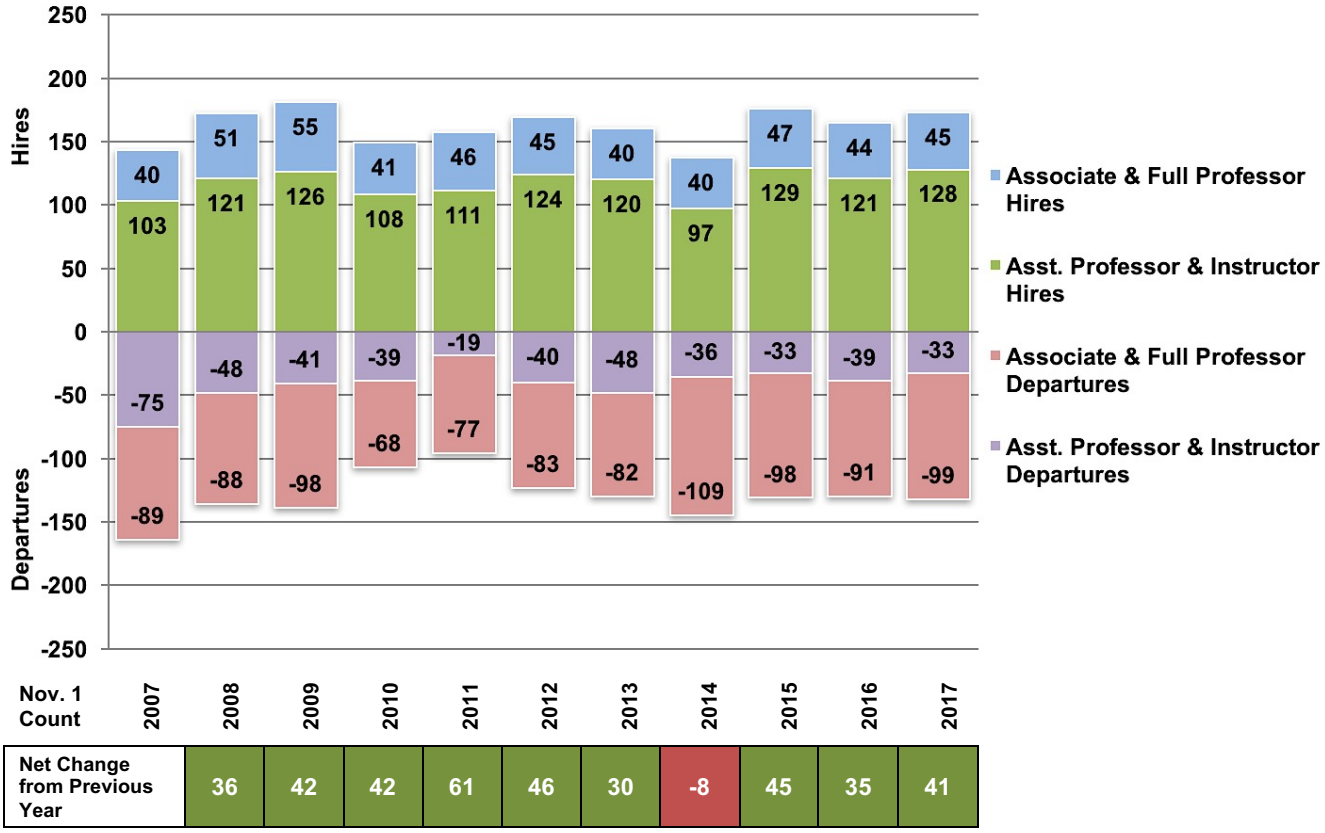
[1] "Coleman outlines faculty hiring program, new initiatives in speech," *University Record*, November 19, 2007.

[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 nine of the last ten years.

### 6.2.2 New Hires and Departures of Tenured/Tenure-Track Faculty; Annual Net Change and Cumulative Change, 2007-17.



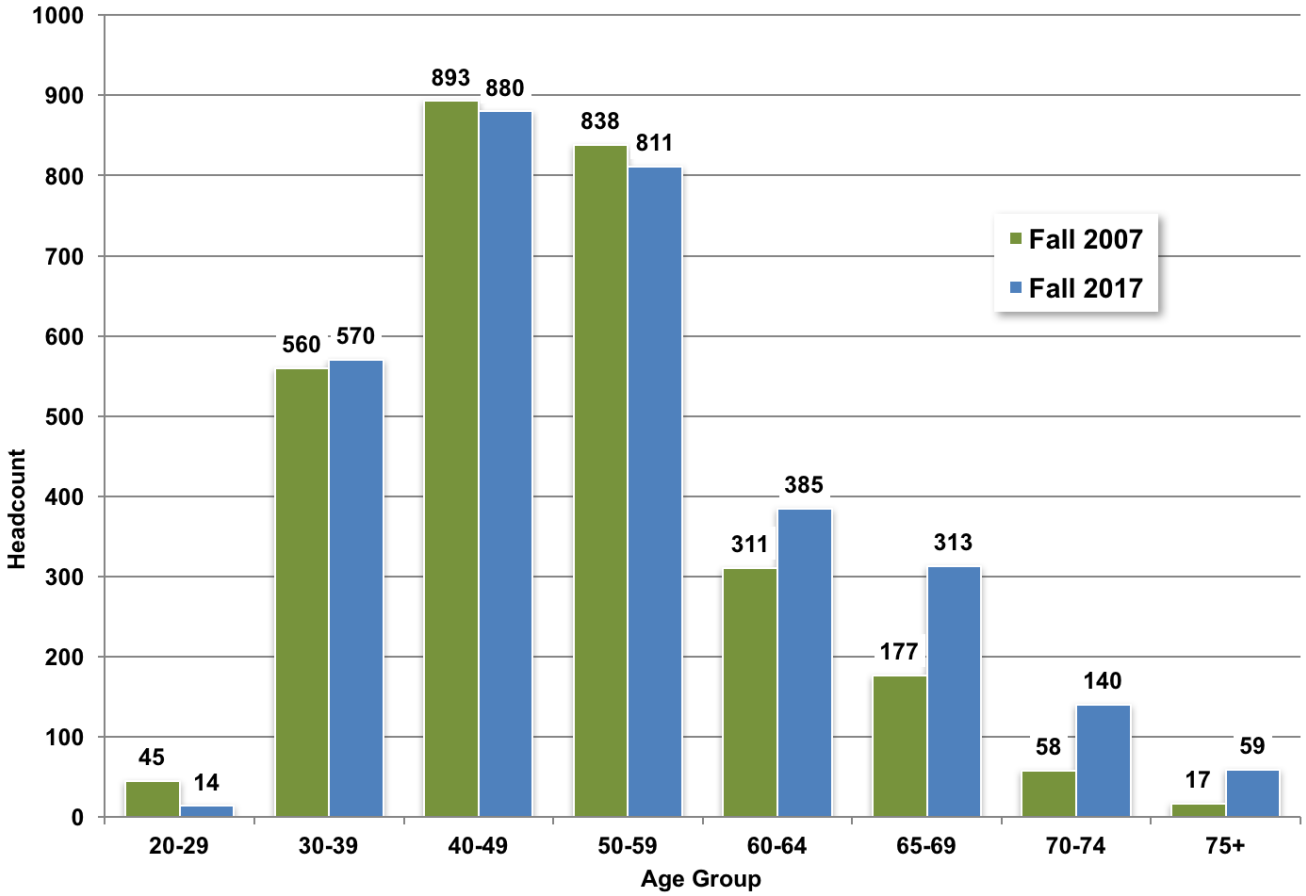

| Nov. 1 Count | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Net Change from Previous Year | | 36 | 42 | 42 | 61 | 46 | 30 | -8 | 45 | 35 | 41 |

SOURCE: U-M Human Resources Data

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, move into non-tenure-track assignments, or who leave the University for other positions.

## In 2007, 48 percent of the faculty was age 50 and older; today the fraction has reached to 54 percent.

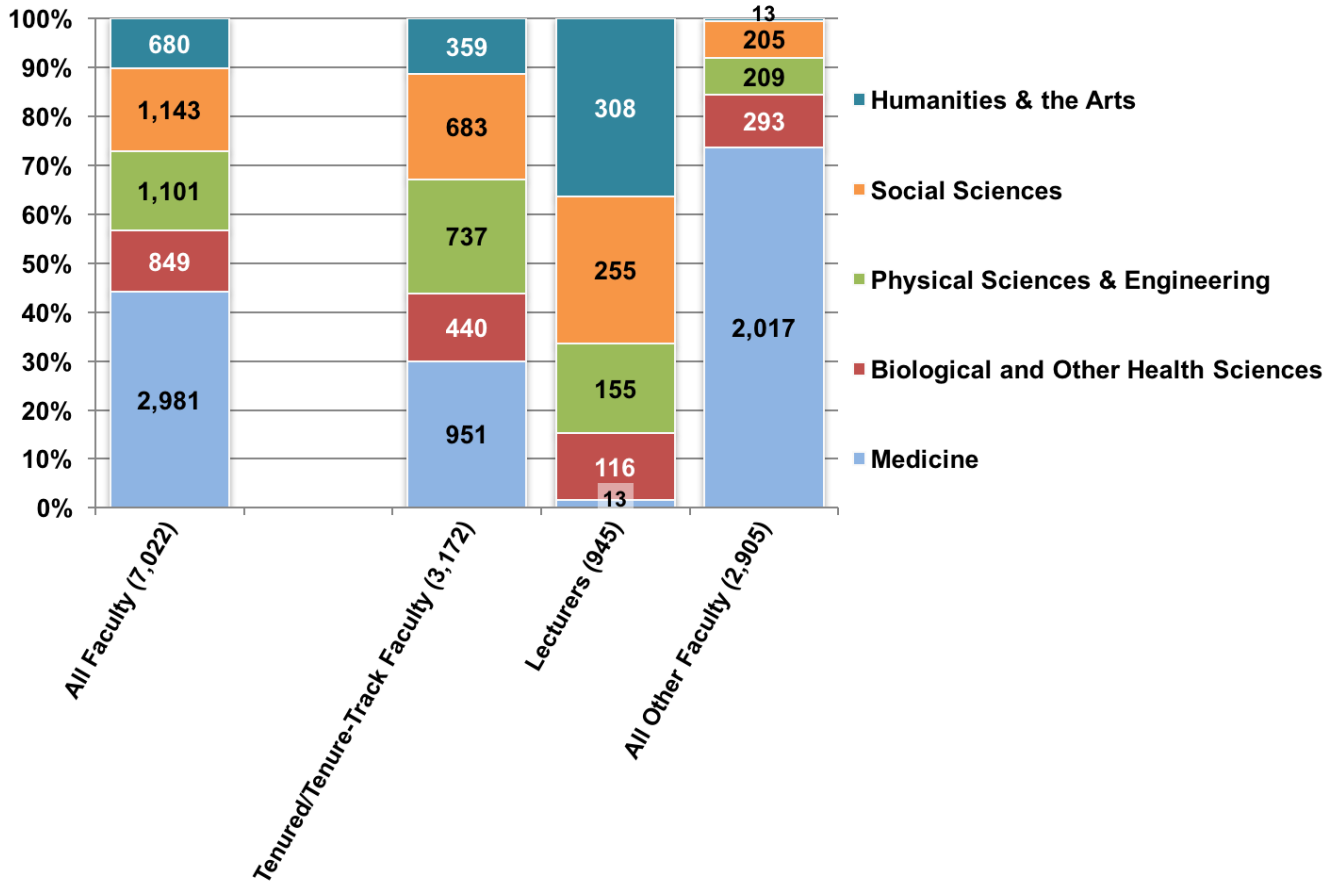
### 6.2.3 Age Distribution of Tenured/Tenure-Track Faculty, Fall 2007 and 2017.




SOURCE: U-M Human Resources Data

## Tenured and tenure-track faculty members are spread broadly across the academic disciplines. Outside of the tenure-track 53 percent of regular faculty members are in medicine.

### 6.3.1 Faculty Distribution by Discipline Groups[4], Fall 2017.




SOURCE: U-M Human Resources Data

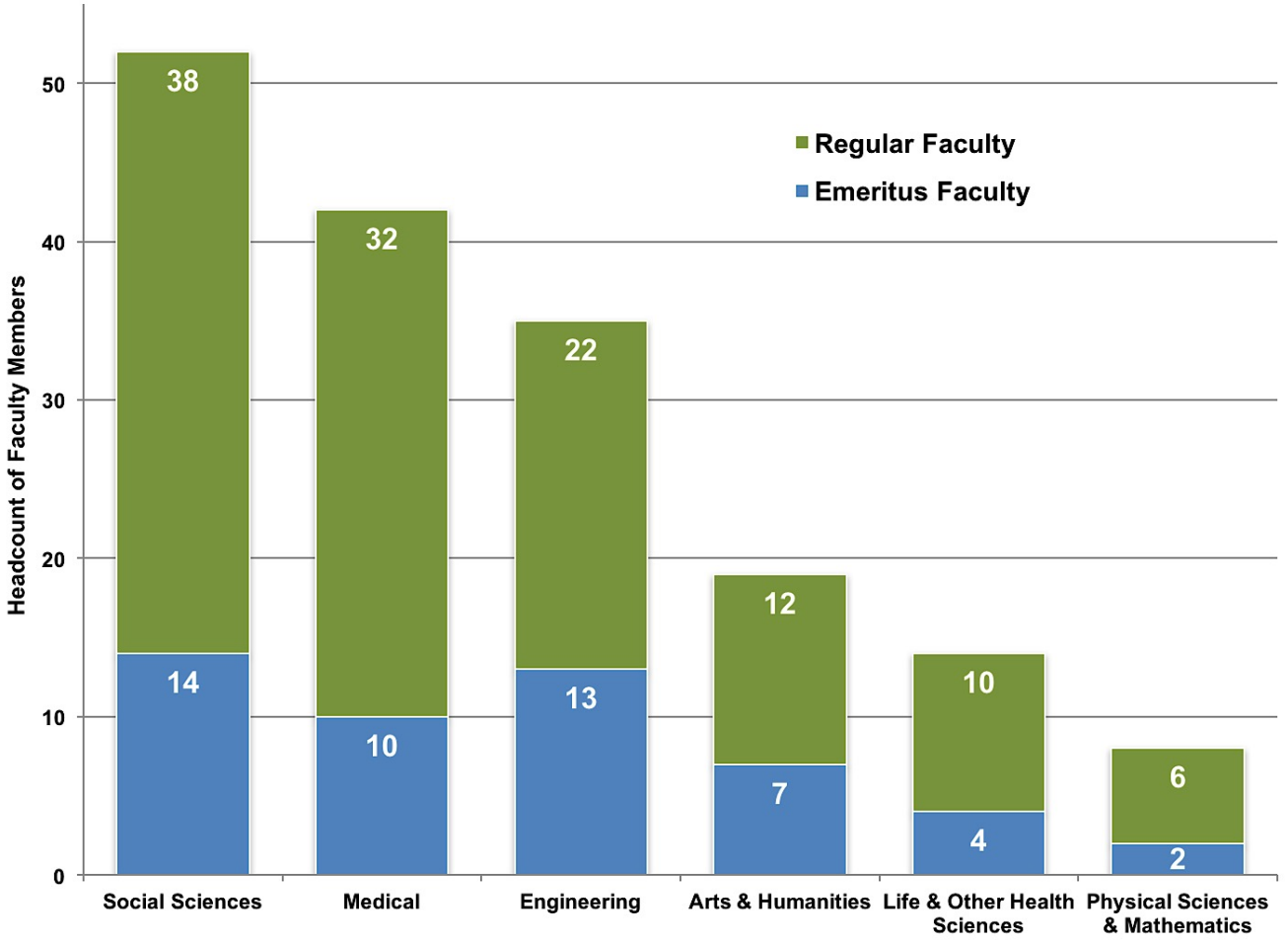
The "All Other Faculty" group includes clinical instructional faculty, research faculty, librarians, archivists, curators, and not-on-track regular faculty.

In addition to the categorization by disciplines shown above, 268 members of the regular faculty hold positions (such as some librarians) or are primarily affiliated with units (such as the Residential College) that do not fit neatly into a discipline. Of these, 2 are tenured or tenure-track faculty, 98 are lecturers and 168 hold other faculty positions.

[4] A list of disciplines assigned to each group is found in Appendix C.

## 170 active and retired U-M faculty members have been elected to one or more of the National Academies.

### 6.3.2 U-M Faculty Members of the National Academies, by Discipline, 2017.




Source: National Academies of Sciences, National Academy of Engineering, National Academy of Medicine[5], American Academy of Arts and Sciences

Membership in a National Academy 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 scholarship and research.

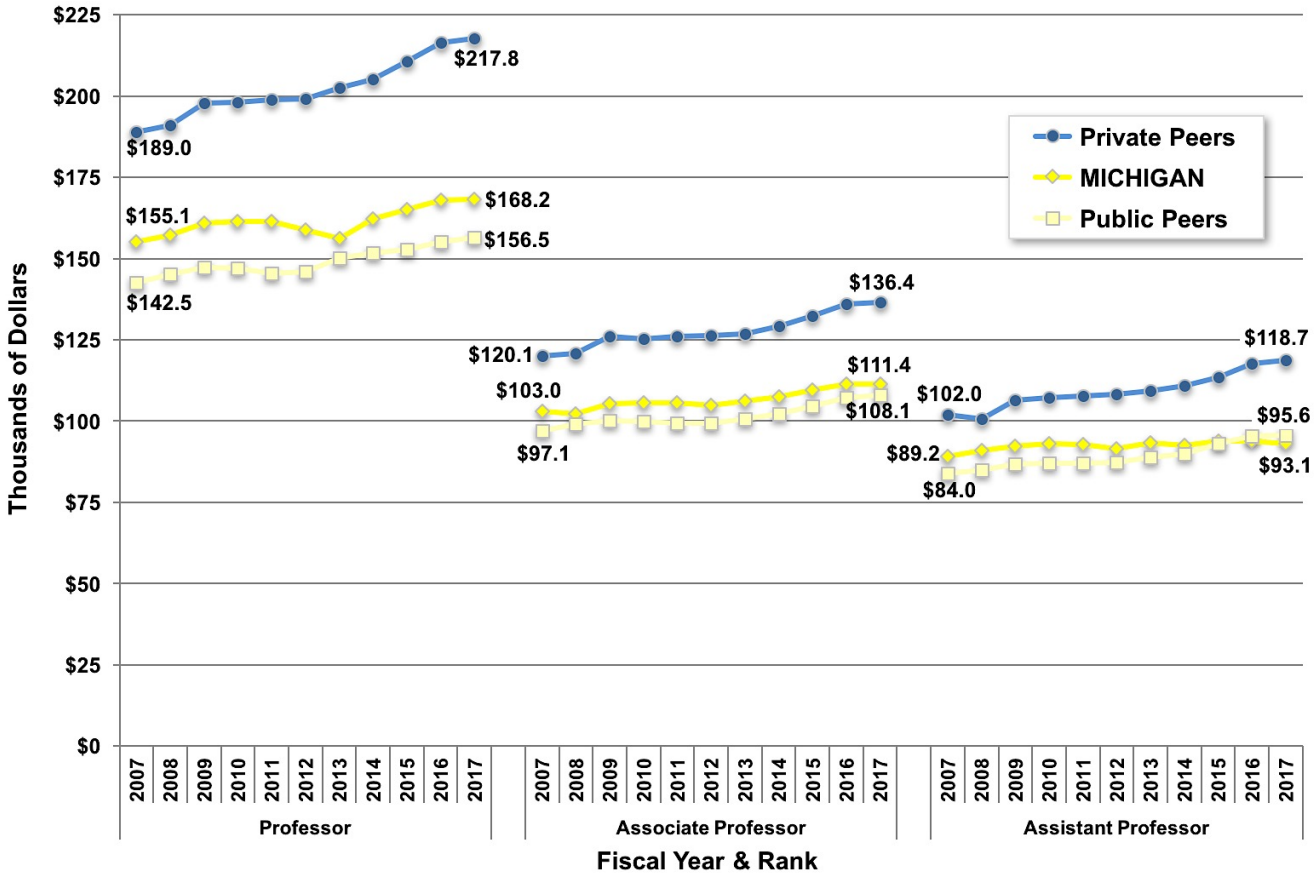
Through the Academies, U-M faculty members serve as a source for independent, unbiased expertise on challenging issues facing the nation and the world. Their advice and insights help shape policies, inform public opinion and advance the pursuit of science, engineering and medicine.

Election to these prestigious societies is through nomination and selection by existing members in recognition of extraordinary achievements and commitment to service.

[5] In 2015, the Institute of Medicine was renamed the National Academy of Medicine.

## 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[6] and Peer Groups[7], Adjusted for Inflation[8], FY2007-17.**




SOURCE: American Association of University Professors

The current average annual salary of full professors at the University of Michigan is $49,600 less than the average of full professors at private peer institutions, and $11,700 more than the average of full professors at public peers. U-M associate professors currently earn $25,000 less than their private university counterparts and $3,300 more than associate professors at public peers. Assistant professors at the U-M currently earn $25,600 below those at private peer universities and $2,500 less than at public peers. All comparisons exclude medical school faculty.

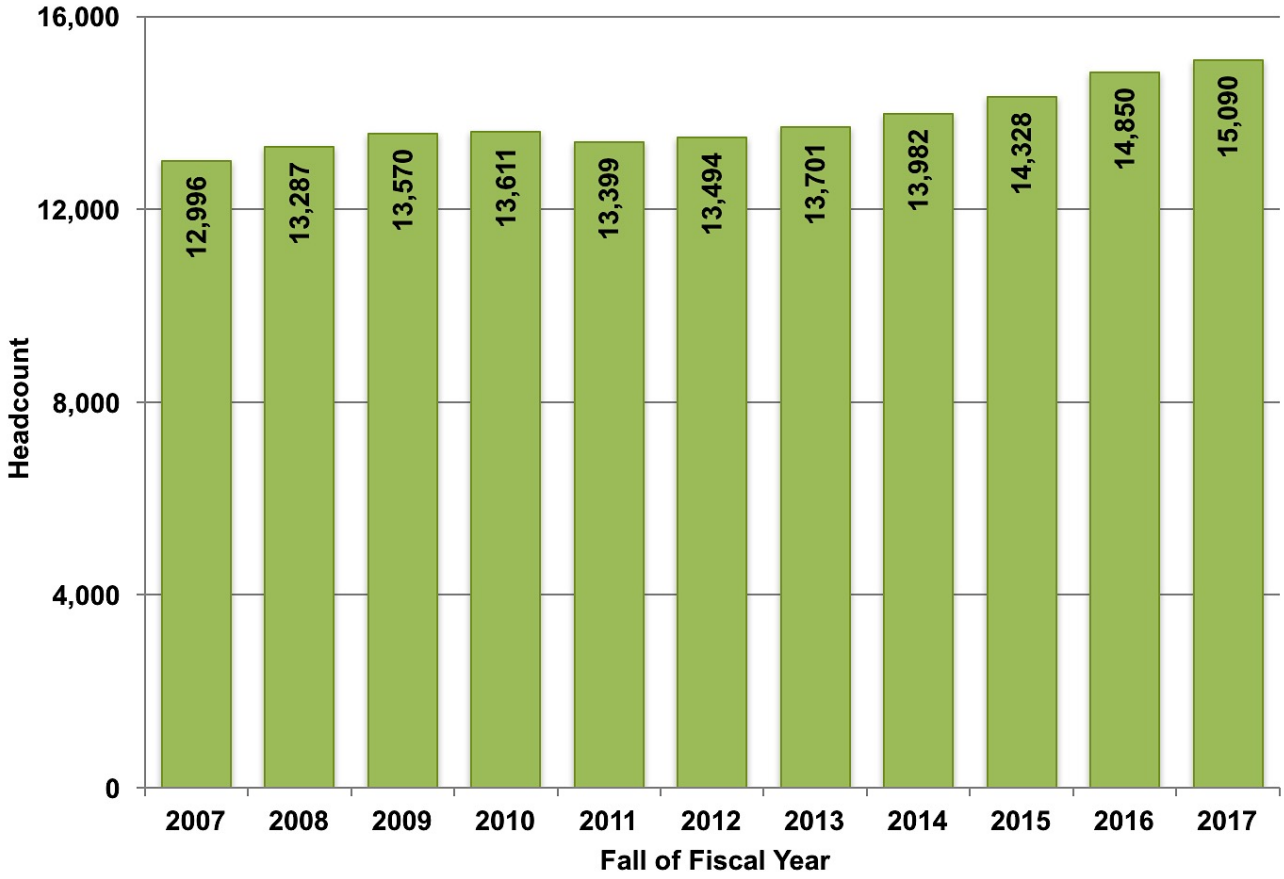
[6] Faculty from the U-M and peer institution medical schools are not included in the data.

[7] A list of the "official" peers used for comparison on this page is found in Appendix A.

[8] Based on FY2017 U.S. Consumer Price Index.

## The rate of growth in total Ann Arbor campus staff[9] is low, increasing at an average annual rate of 1.5 percent over the last decade.

### 6.5.1 Headcount of Regular Staff, Fall 2007-17.



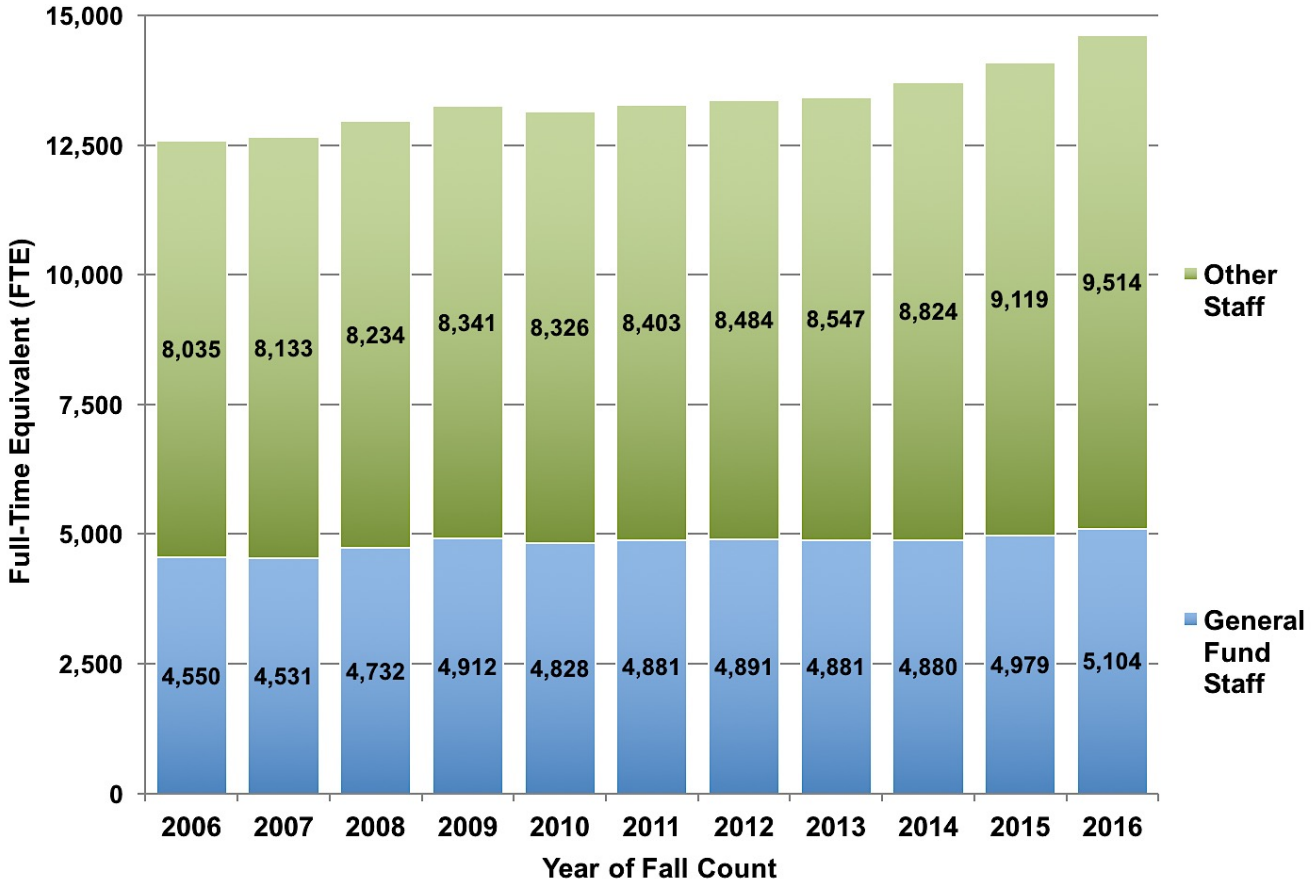

SOURCE: U-M Human Resources Data

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.

[9] Staff excludes individuals whose primary appointment is in a faculty position.

**About one-third of the total full-time equivalent appointments of non-Health System staff[10] 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[11]), by Fund Sources, 2006-16.




SOURCE: U-M Human Resources Data

Staff FTEs paid by the General Fund were 36 percent of the total in 2006. A decade later the fraction is slightly smaller at 34.9 percent of the total. Each year's FTE total is based on November 1 appointment data.

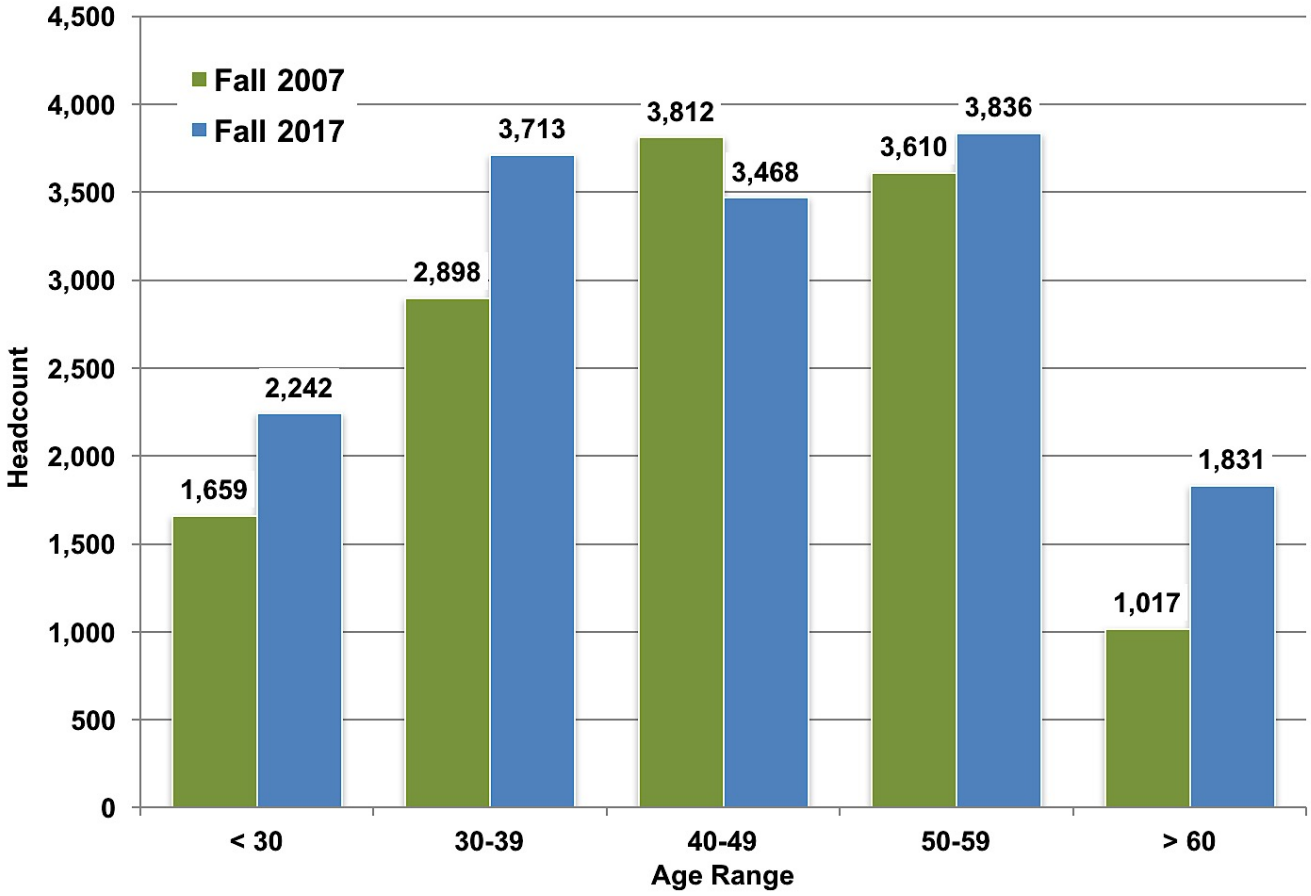
Financial support for Other Staff comes from the Designated Fund, Expendable Restricted Fund, Sponsored Fund, and Auxiliary Fund.

In this chart, any appointment to faculty rank, even a fractional one, is excluded.

[10] Staff FTEs exclude all fractional appointments to a faculty position.

## In 2007, 36 percent of the Ann Arbor campus non-Health System regular staff[11] was age 50 and older. Today that group represents 38 percent of the staff population.

**6.6 Age Distribution of Staff, Fall 2007 and Fall 2017.**




SOURCE: U-M Human Resources Data

[11] The regular staff category excludes individuals whose primary appointment is in a faculty position, or in a temporary staff 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[1] and the 2006 passage of Proposal 2 in the State of Michigan put limits on the University's actions, the U-M remains committed to fostering racial, ethnic, gender and socio-economic diversity at the institution by all possible legal means.

## Overview

The University regularly administers a survey of undergraduate students known as UMAY (University of Michigan Asks You). Several questions probe the campus climate with regard to feelings of respect for race/ethnic identity, political and religious views, sex, and sexual orientation. This chapter includes charts summarizing student responses to climate questions from four previous surveys.

Other charts present the racial/ethnic and sex composition of the University of Michigan student body. Among U-M's graduate academic population, 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 student 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 identify students with at least one affiliation as an under-represented minority. Throughout this chapter, the race/ethnicity charts provide data, when available, for categories labeled "Two or More URM" and "Two or More Non-URM". (URM in the legends stand for "Under-Represented Minority.")

## For more information

Diversity, Equity & Inclusion web site (diversity.umich.edu/)

*Chart updated since the September 2017 edition.*

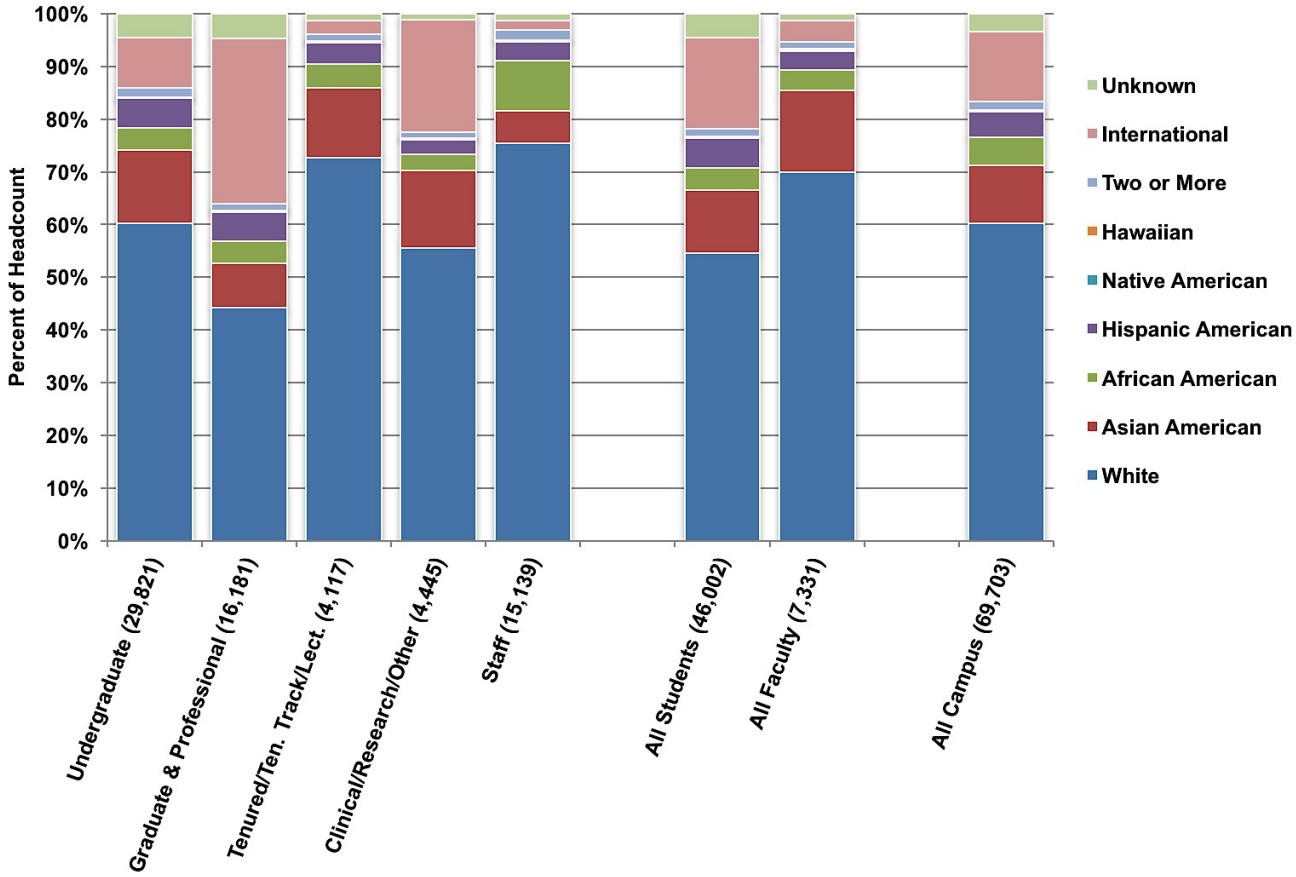
## Charts in Chapter 7



[1] Summary of Supreme Court Decisions in Admissions Cases, Jonathan Alger, U-M Assistant General Counsel, June 23, 2003, (diversity.umich.edu/admissions/overview/cases-summary.html)

## About 23 percent of the campus community is an ethnic or racial minority and 12 percent is international.

### 7.1.1 Race and Ethnicity Distribution of the Ann Arbor Campus Community, Fall 2017.




SOURCE: U-M Student Data Sets; U-M Human Resources Data Sets (excludes U-M Health System).

The numbers in parentheses are the category headcounts; the staff count excludes Health System staff.

"Clinical/Research/Other" includes clinical and research faculty, all supplemental faculty, not on track faculty, emeritus faculty and research fellows. "All Faculty" excludes research fellows (post-docs).

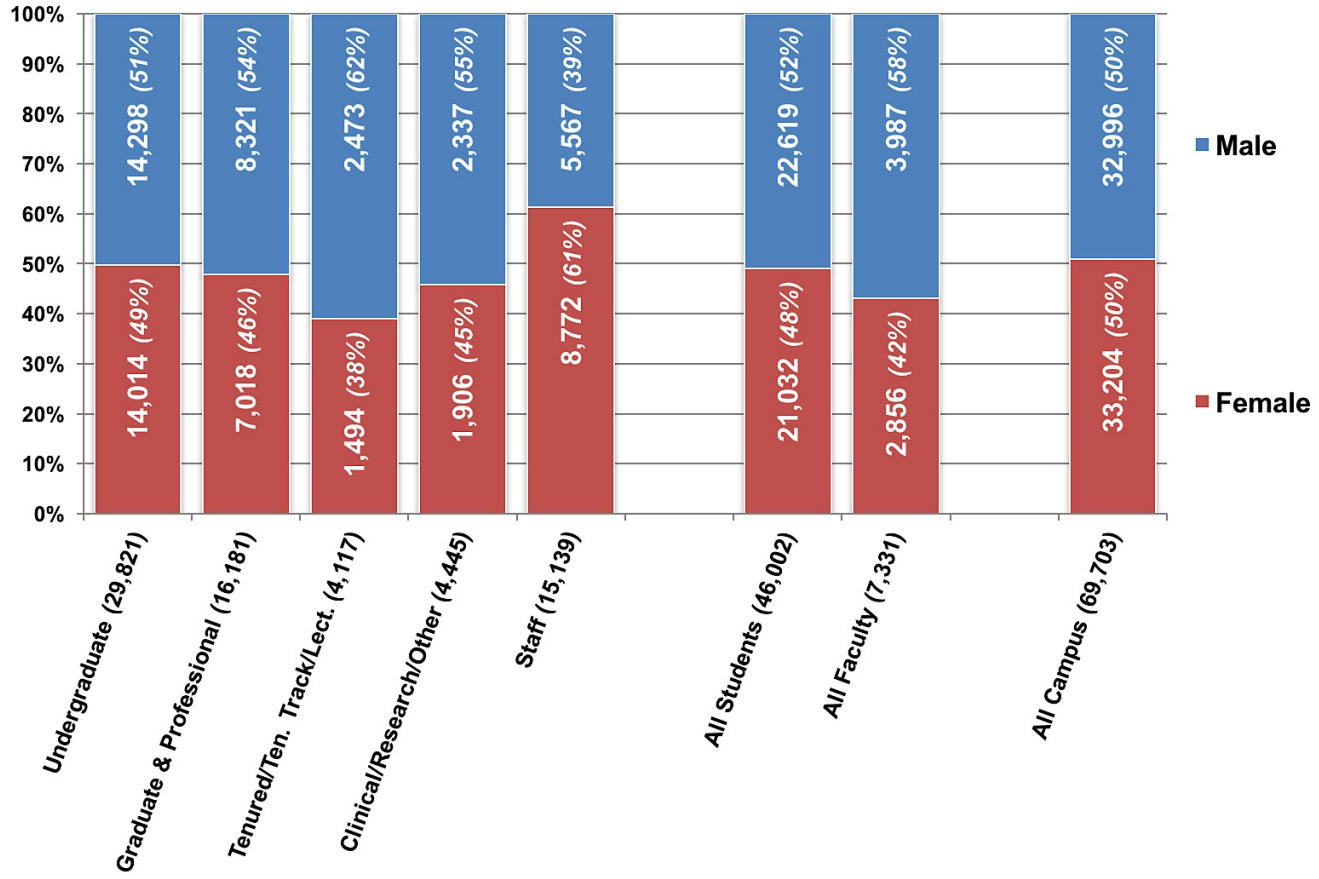
URM in the legend stands for "under-represented minority." "Two or More URM" represents non-Hispanic individuals who identified two or more ethnicities and at least one of the ethnicities included African American, Hawaiian, or Native American. "Two or More non-URM" represents individuals who identified 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 2015-16, U-M ranked 14th in the nation.[2]

[2] "Open Doors 2016: International Students: Leading Institutions."

## The student body is 49 percent female, the faculty is 43 percent female, and the staff is 61 percent female.

### 7.1.2 Sex Distribution of the Ann Arbor Campus Community, Fall 2017.

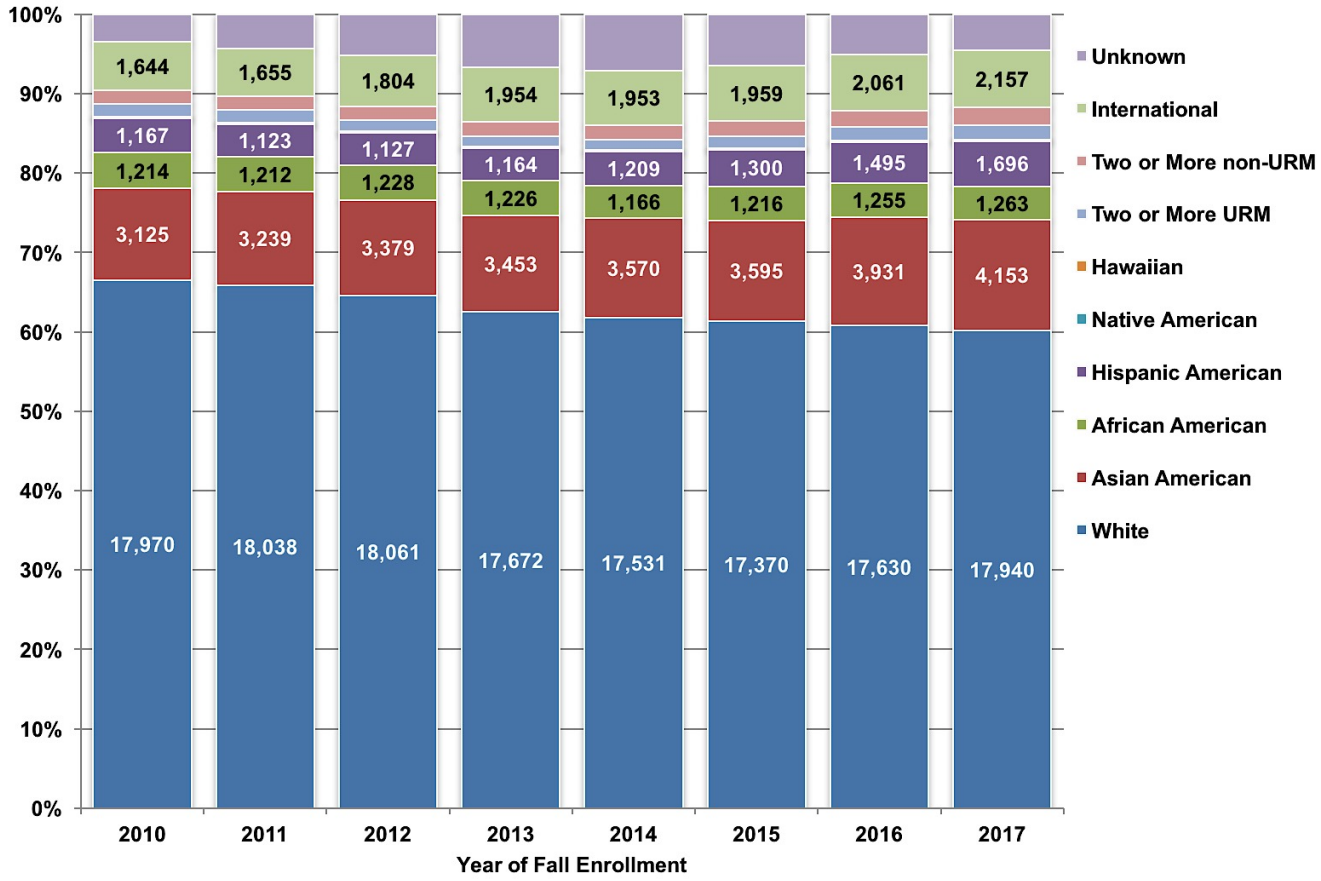



SOURCE: U-M Student Data Sets; U-M Human Resources Data Sets (excludes U-M Health System).

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.

## Total undergraduate enrollment has increased 10 percent since 2010, and the composition of the race/ethnicity profile of undergraduate students has shifted to include somewhat more minority representation.

### 7.2.1 Race and Ethnicity Distribution of Undergraduate Students, Fall 2010-17.



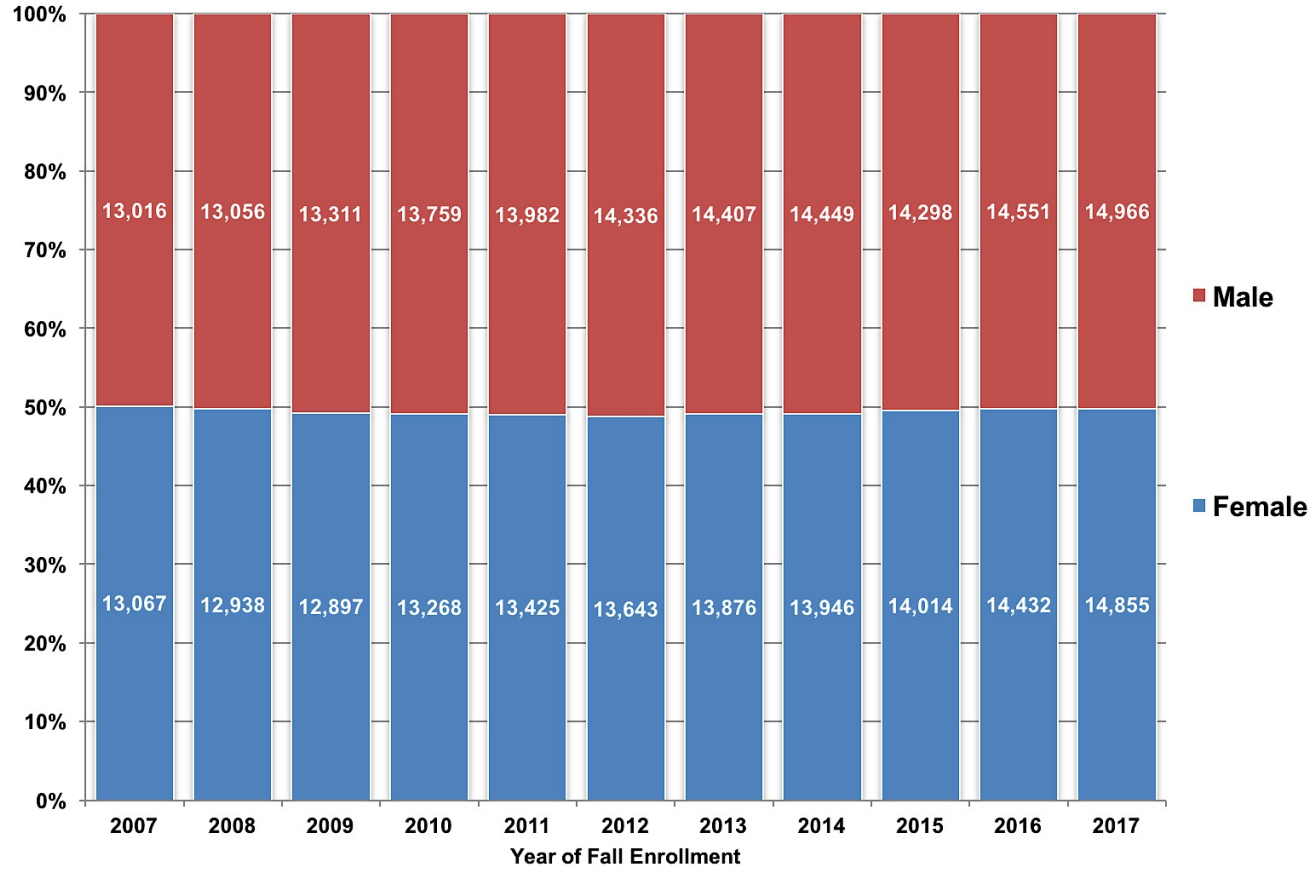

SOURCE: U-M Student Data Sets.

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, following a change in federal requirements for collecting race and ethnicity data from students.

"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 breakdown by sex of undergraduate students during the last decade, which has been split nearly 50-50.

### 7.2.2 Sex Distribution of Undergraduate Students, Fall 2007-17.



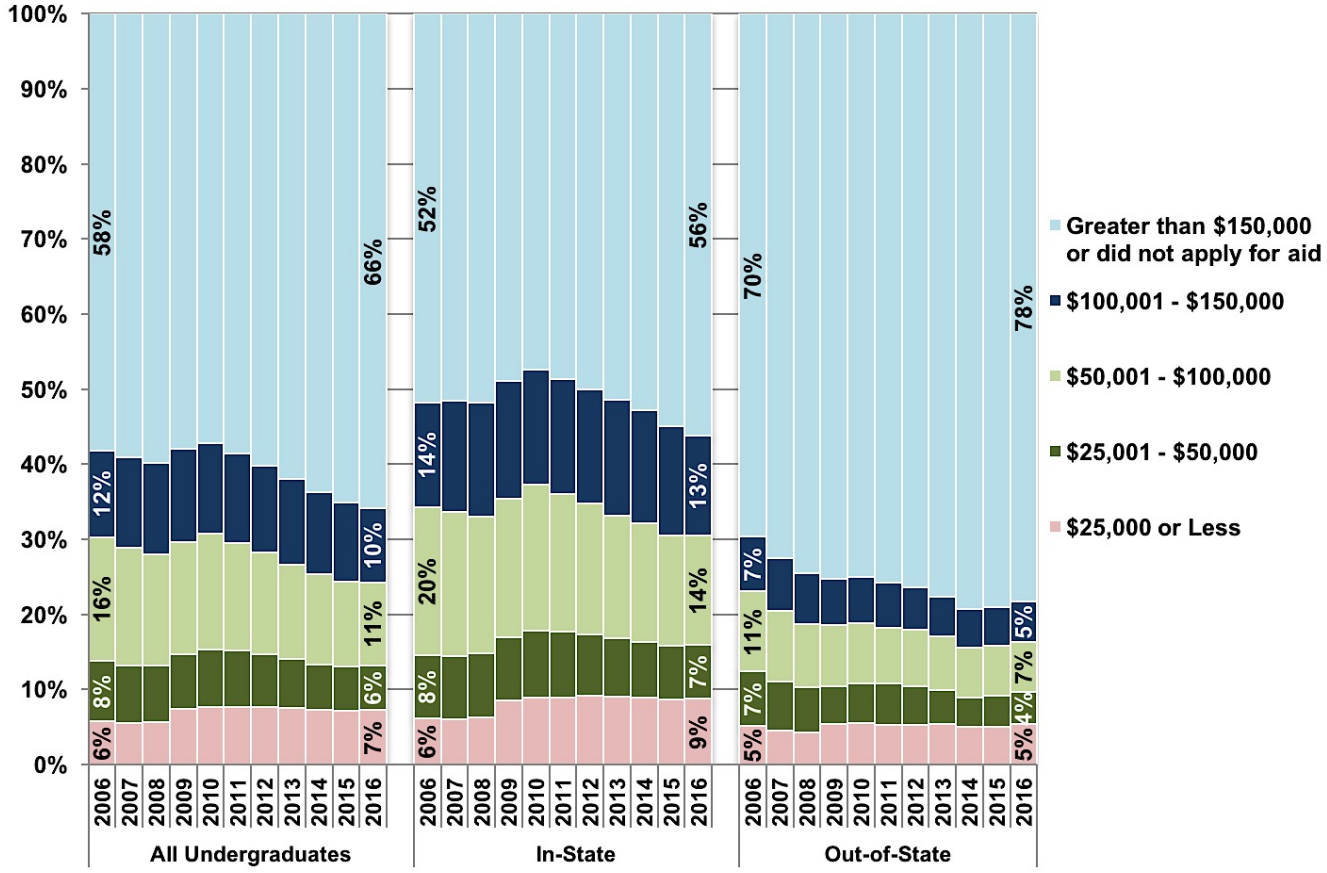

SOURCE: U-M Student Data Sets.

During the last decade, the proportion of female undergraduates was highest in Fall 2007 at 50.1% and highest for males in Fall 2012 at 51.2%. Nationally, the gender split for undergraduate students at 4-year, degree-granting colleges and universities is 55.6 percent female and 44.4 percent male.[3]

[3] Digest of Education Statistics, Table 303.65, 2015 Tables and Figures, National Center for Education Statistics.

## The fraction of U-M in-state undergraduates from families with annual incomes of $50,000 or less has increased by about 2 percent over the last decade.

### 7.3 U-M Undergraduates by Family Income, and by In-State/Out-of-State Status, Fall 2006-16.

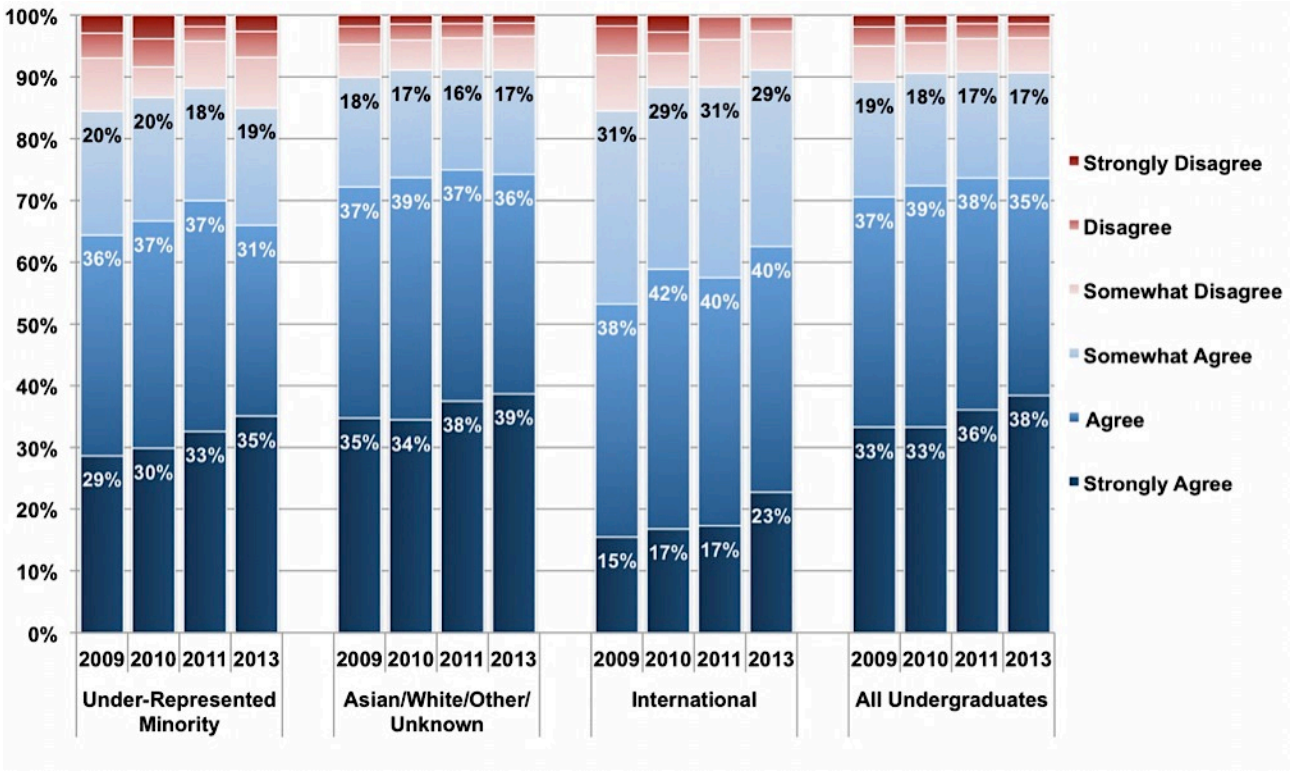



SOURCE: U.S. Department of Education.

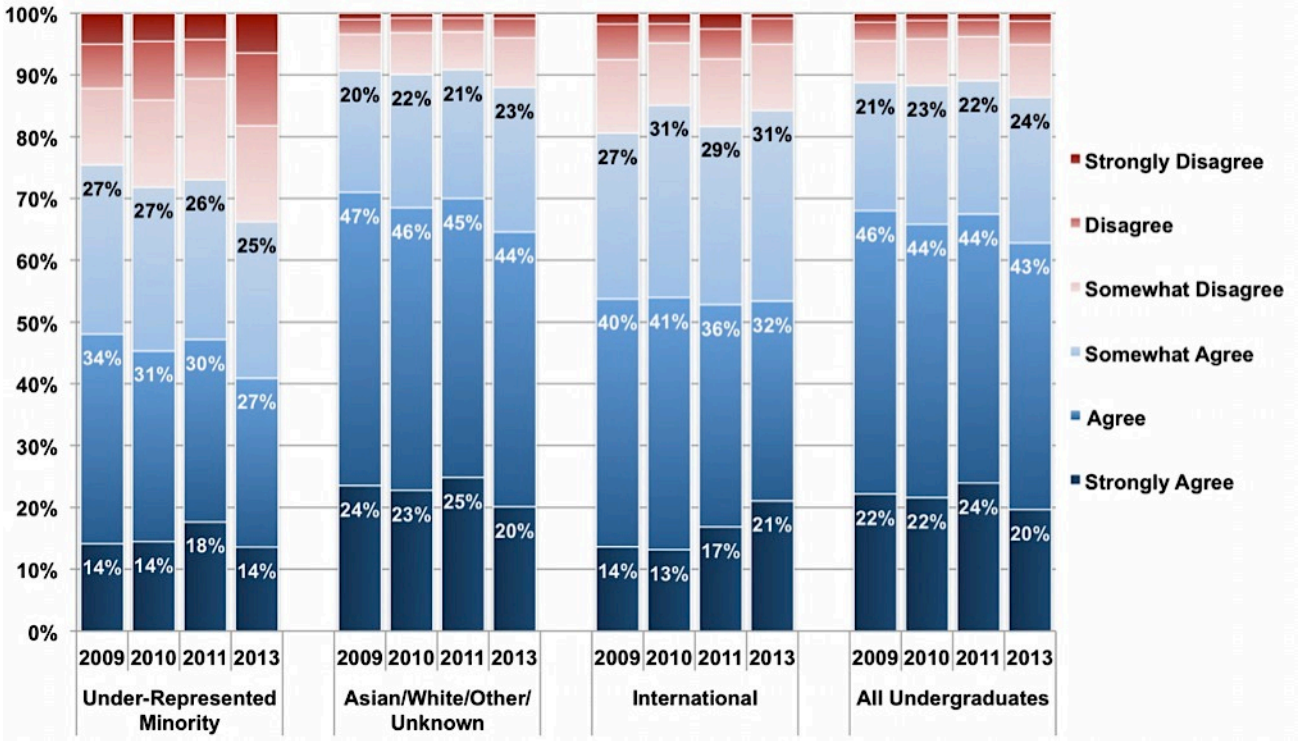
Family income is based on data reported on the Free Application for Federal Student Aid (FAFSA), the online form that college students must complete to be considered for financial aid.

## 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 Responses to "I feel that I belong at this campus," 2009-11, 2013.



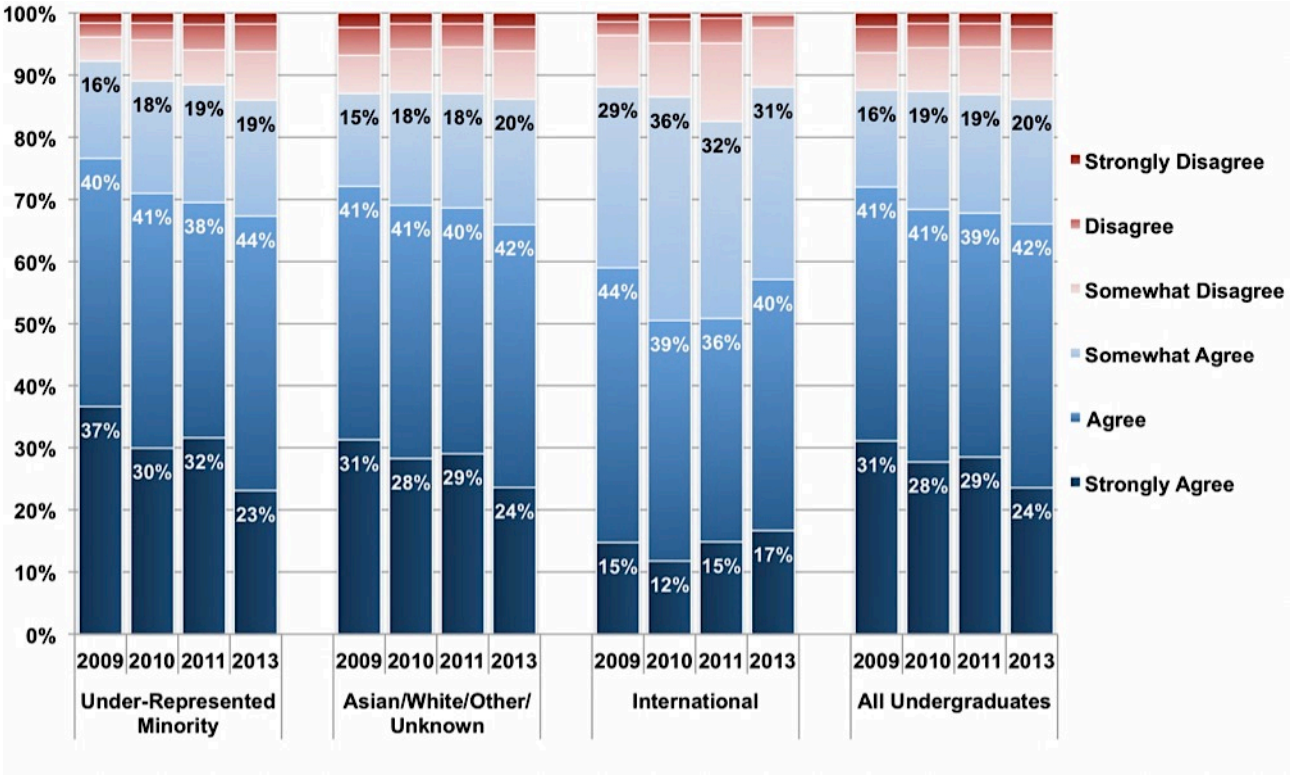

### 7.4.2 Responses to "Students are respected here regardless of their race or ethnicity," 2009-11, 2013.



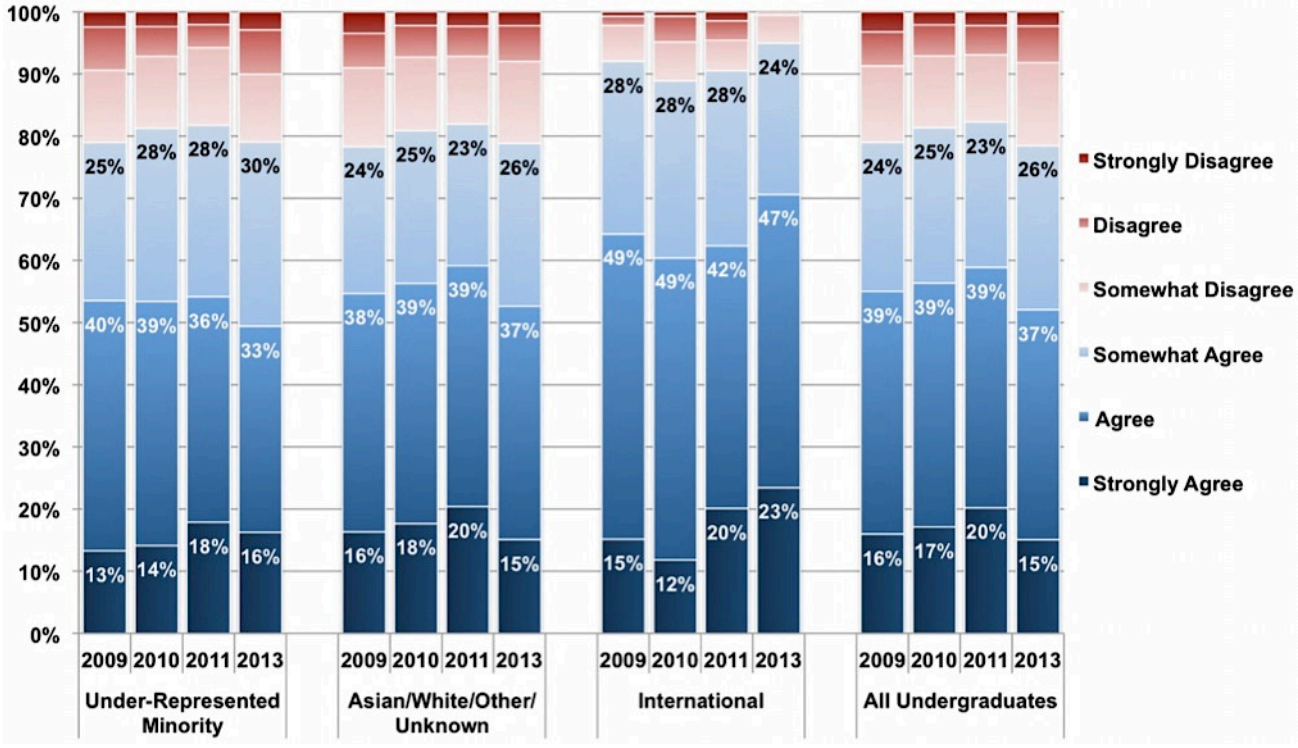

SOURCE: UMAY (U-M Asks You) undergraduate survey.

## 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 Responses to "I feel free to express my political beliefs on campus," 2009-11, 2013.



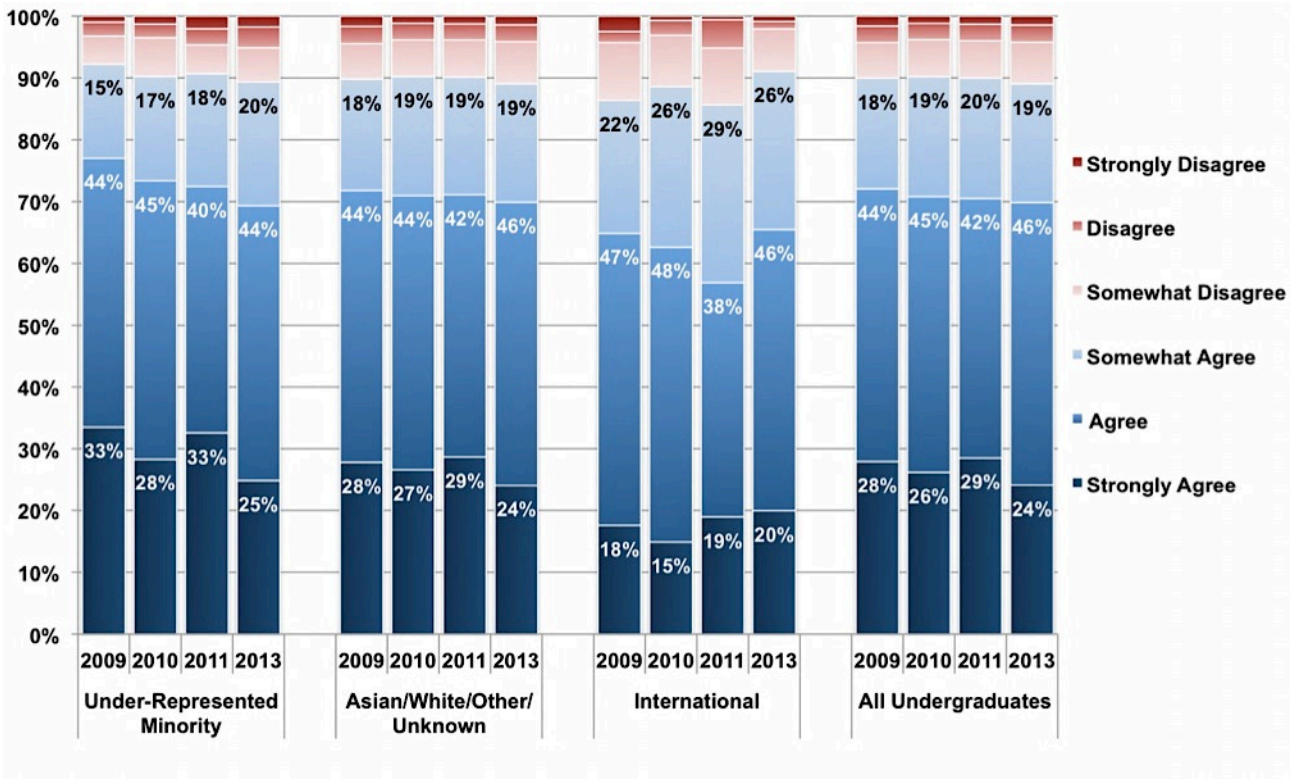

### 7.4.4 Responses to "Students are respected here regardless of their political beliefs," 2009-11, 2013.



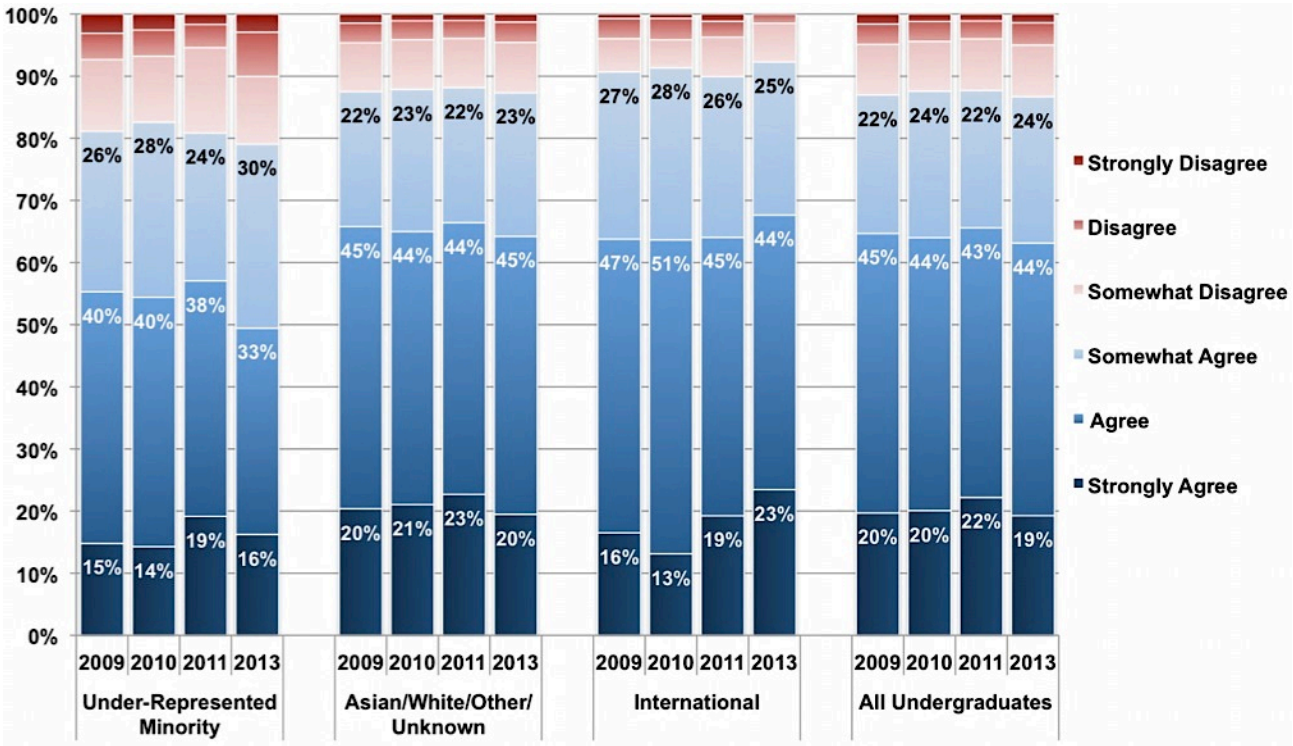

SOURCE: UMAY (U-M Asks You) undergraduate survey.

## Nearly 90 percent of undergraduates feel free to express religious beliefs on campus.

### 7.4.5 Responses to "I feel free to express my religious beliefs on campus," 2009-11, 2013.



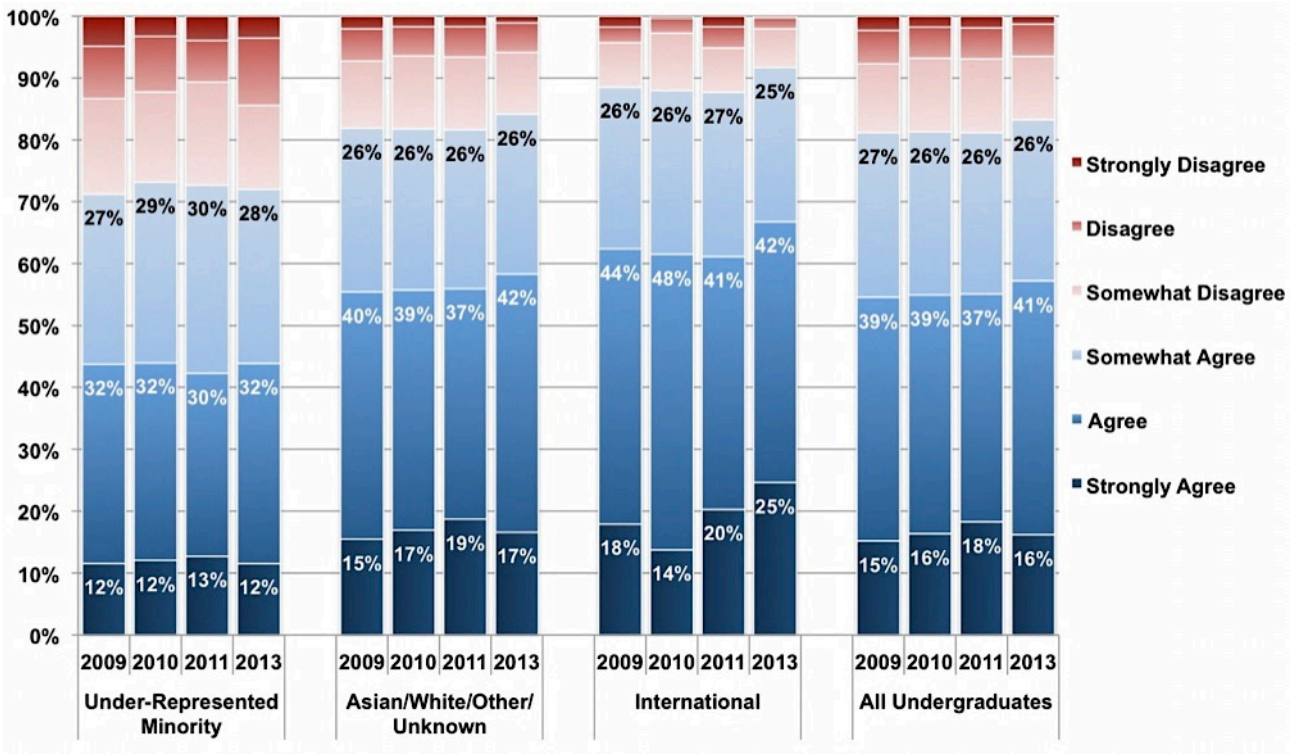

### 7.4.6 Responses to "Students are respected here regardless of their religious beliefs," 2009-11, 2013.




SOURCE: UMAY (U-M Asks You) undergraduate survey.

## 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.

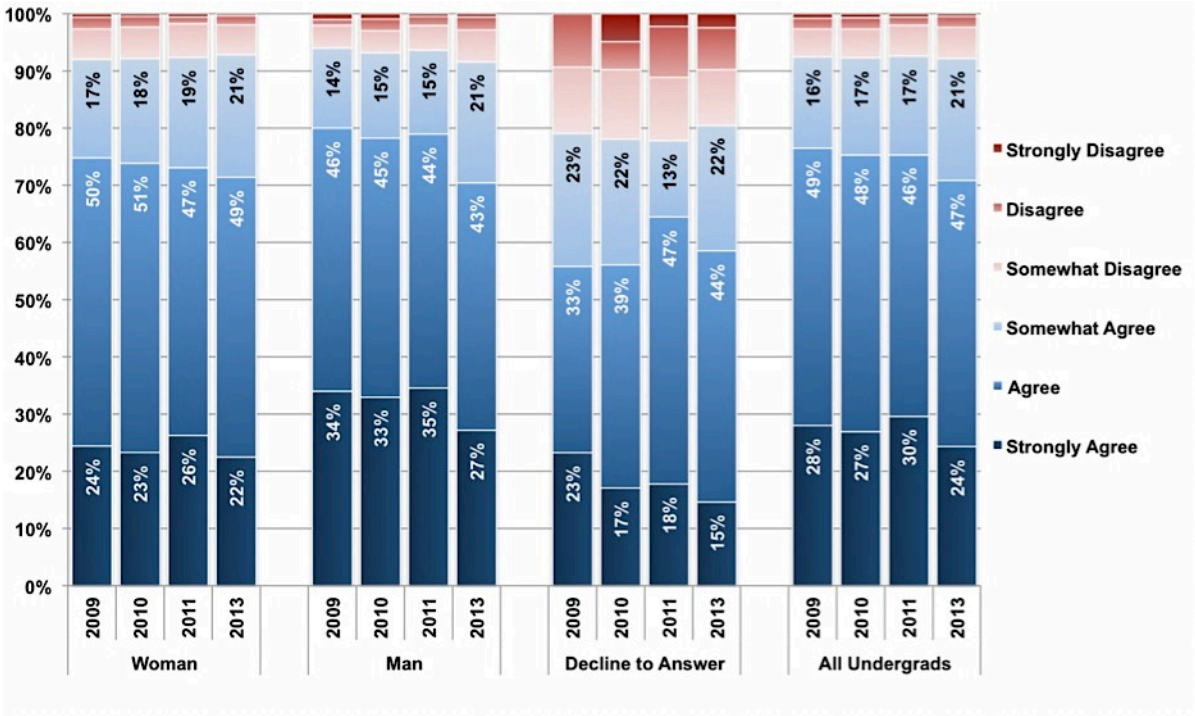
### 7.4.7 Responses to "Students are respected here regardless of their economic or social class," 2009-11, 2013.



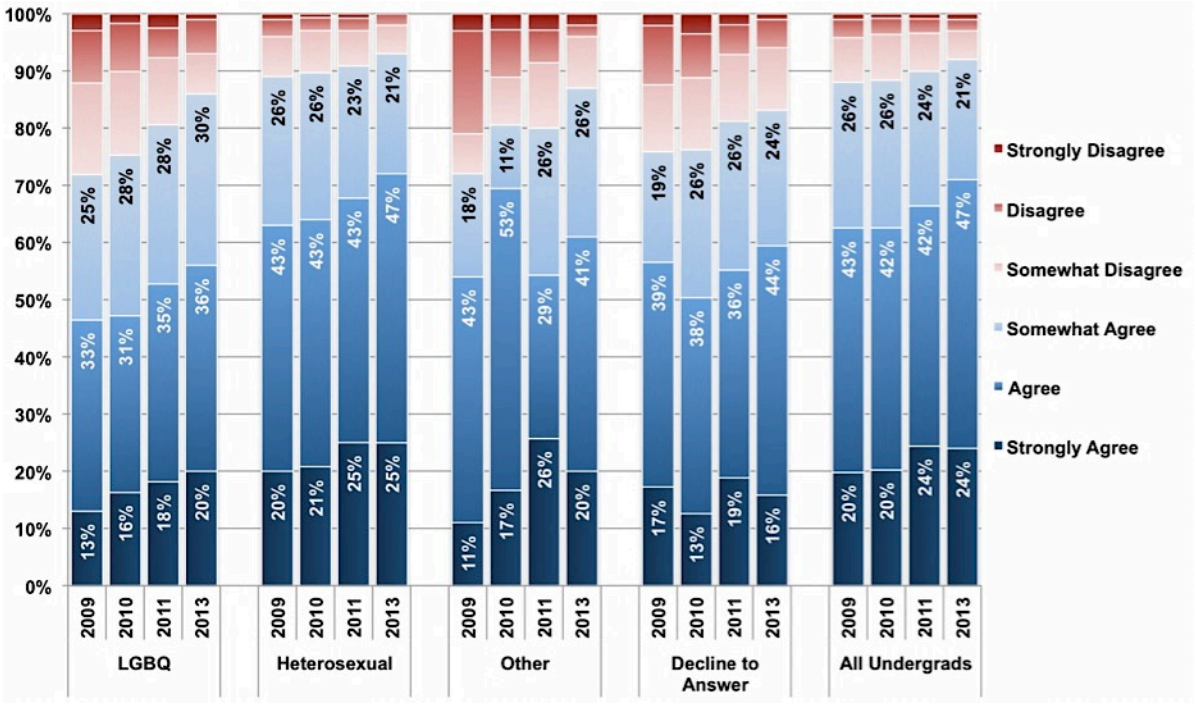

SOURCE: UMAY (U-M Asks You) undergraduate survey.

## More than 90 percent of male and female students say they believe students on campus are respected regardless of gender.

### 7.4.8 Responses to "Students are respected here regardless of their gender," 2009-11, 2013.




### 7.4.9 Responses to "Students are respected here regardless of their sexual orientation," 2009-11, 2013.

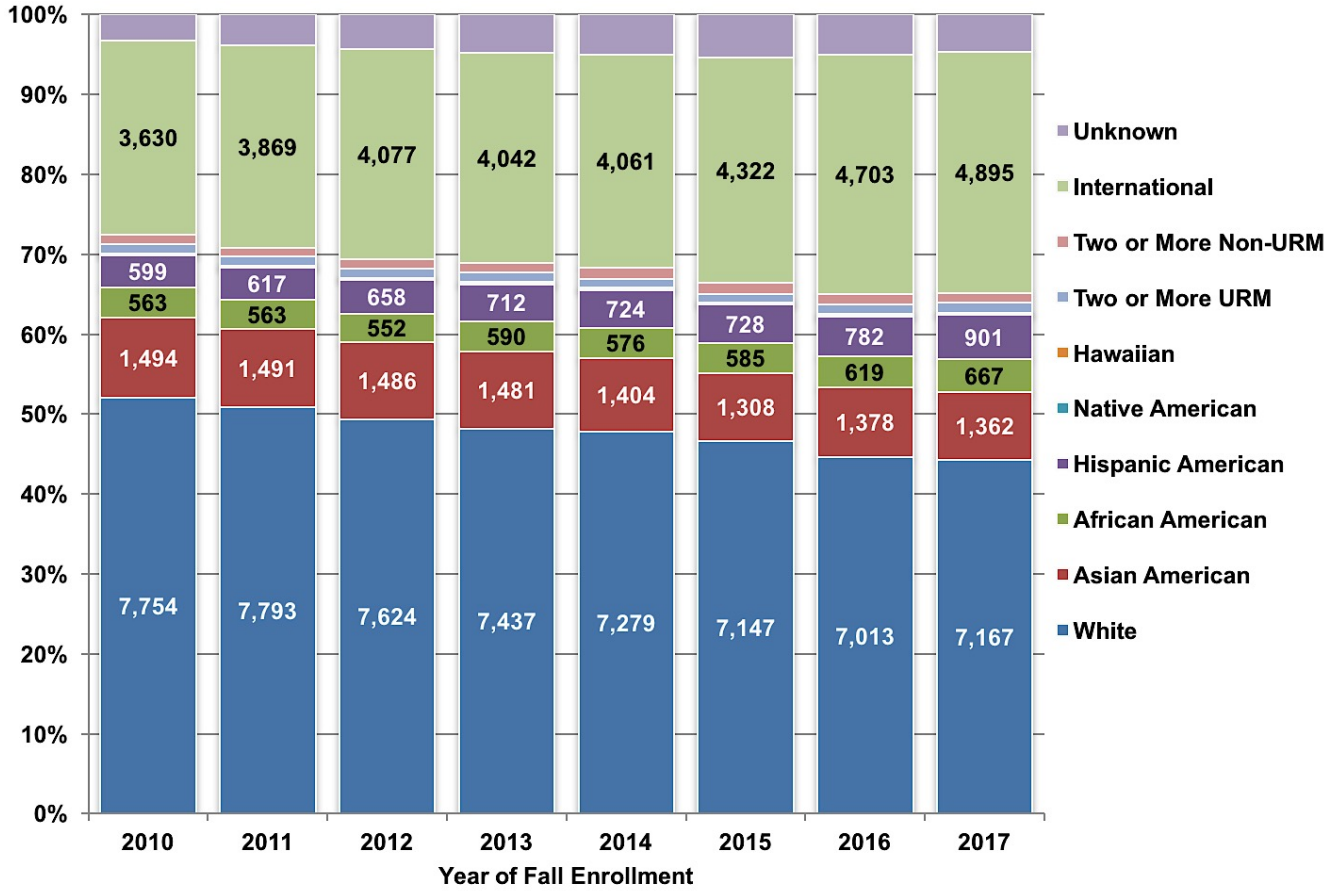



SOURCE: UMAY (U-M Asks You) undergraduate survey.

"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 nearly one-third of the graduate and professional student population.

### 7.5.1 Race and Ethnicity Distribution of Graduate and Professional[4] Students, Fall 2010-17.




SOURCE: U-M Student Data Sets.

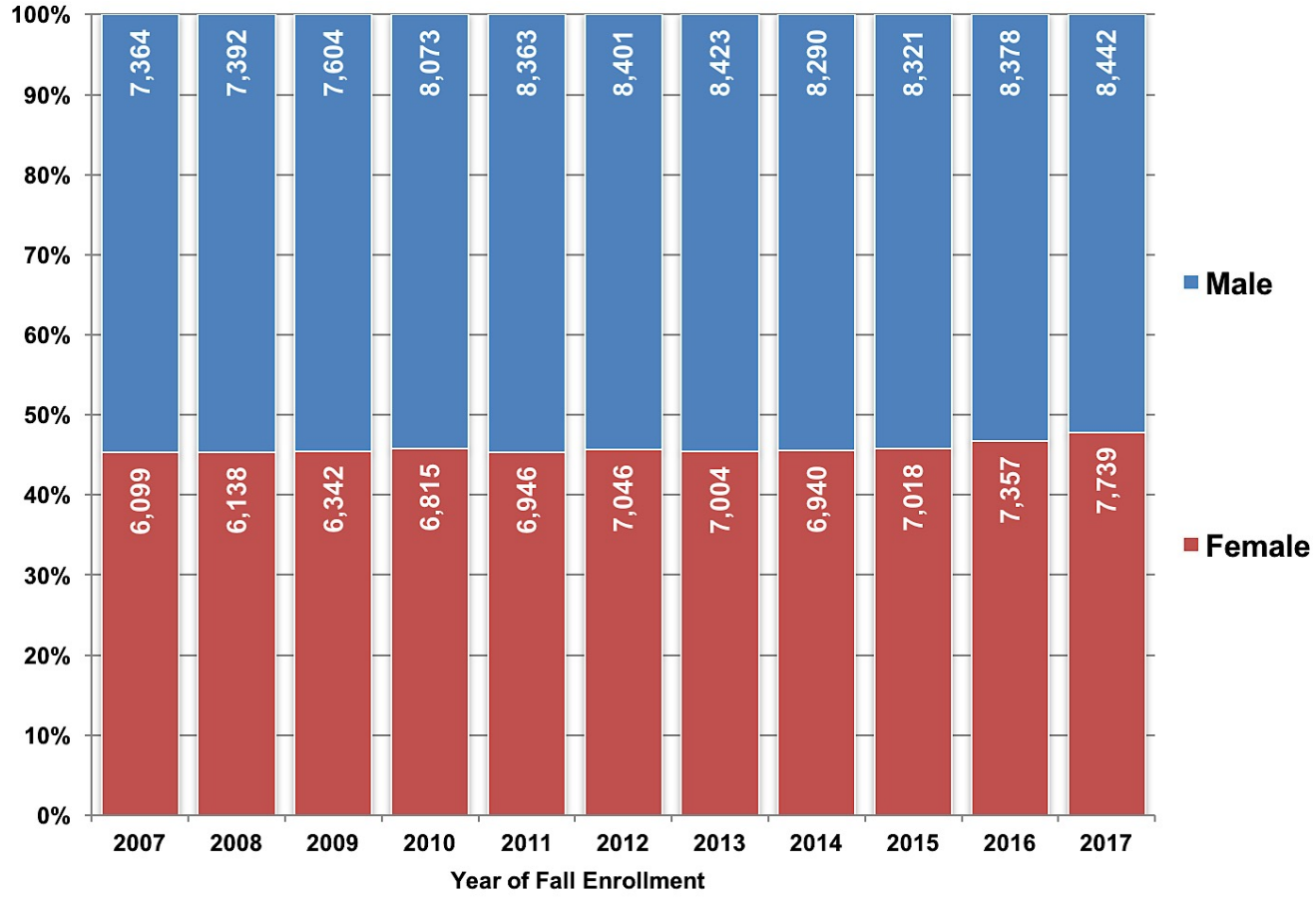
Data for students who identify as Hawaiian, Two or More Under-Represented Minority (URM), or Two or More non-URM are only available for 2010 and later, following a change in federal requirements for collecting race and ethnicity data from students.

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 published in Appendix D.

## Females have averaged about 46 percent of the total graduate and professional student population for the last decade, although the percentage has risen from 45.3 percent in 2007 to 47.8 percent in 2017.

### 7.5.2 Sex Distribution of Graduate and Professional[5] Students, Fall 2007-17.

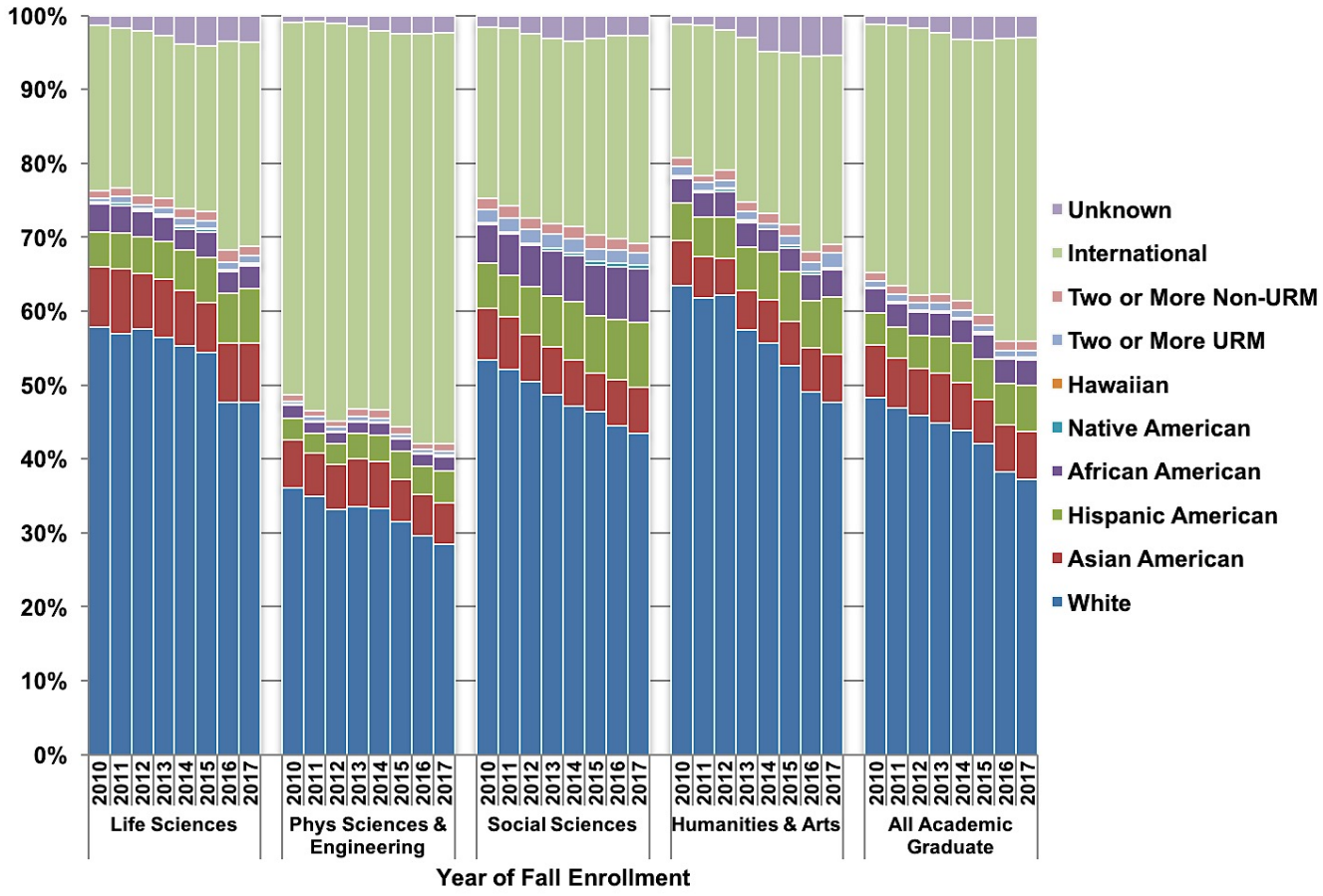



SOURCE: U-M Student Data Sets.

[5] A list of U-M professional degree programs is published in Appendix D.

## Racial and ethnic diversity among students pursuing academic Master's and Ph.D. degrees is relatively stable. The fraction of graduate students who self-identify as an under-represented minority is at 11 percent in 2017.

### 7.5.3 Race and Ethnicity Distribution of Graduate Academic Students by Broad Discipline[6], Fall 2010-17.




SOURCE: U-M Student Data Sets.

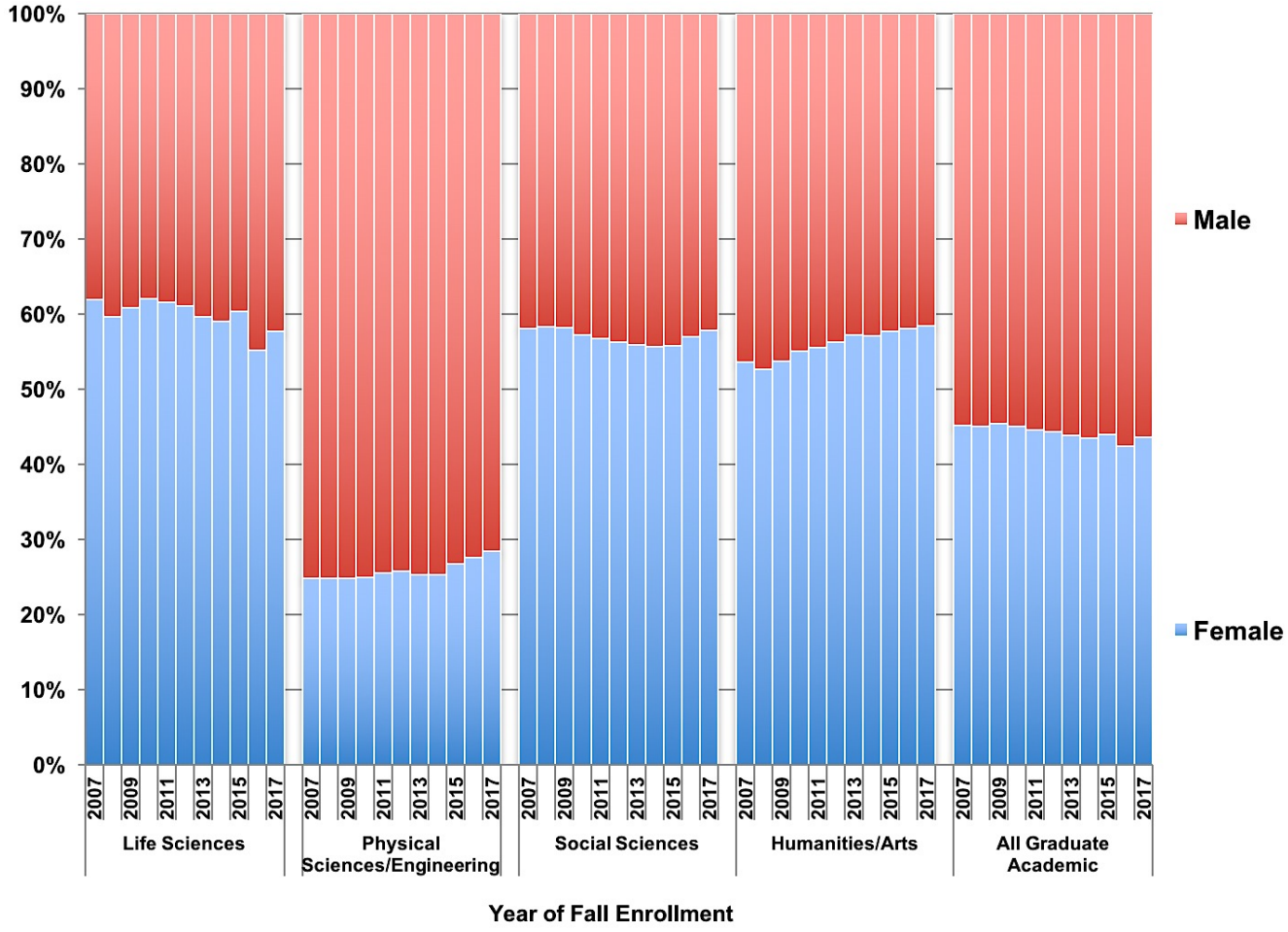
Data for students who identify as Hawaiian, Two or More Under-Represented Minority (URM), or Two or More non-URM are only available for 2010 and later, following a change in federal requirements for collecting race and ethnicity data from students.

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. "Two or More Non-URM" represents individuals selecting more than one ethnicity, none of which are under-represented minorities.

[6] A list of the disciplines assigned to each category is published 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 sexes.

### 7.5.4 Sex Distribution of Graduate Academic Students by Broad Discipline[7], Fall 2007-17.

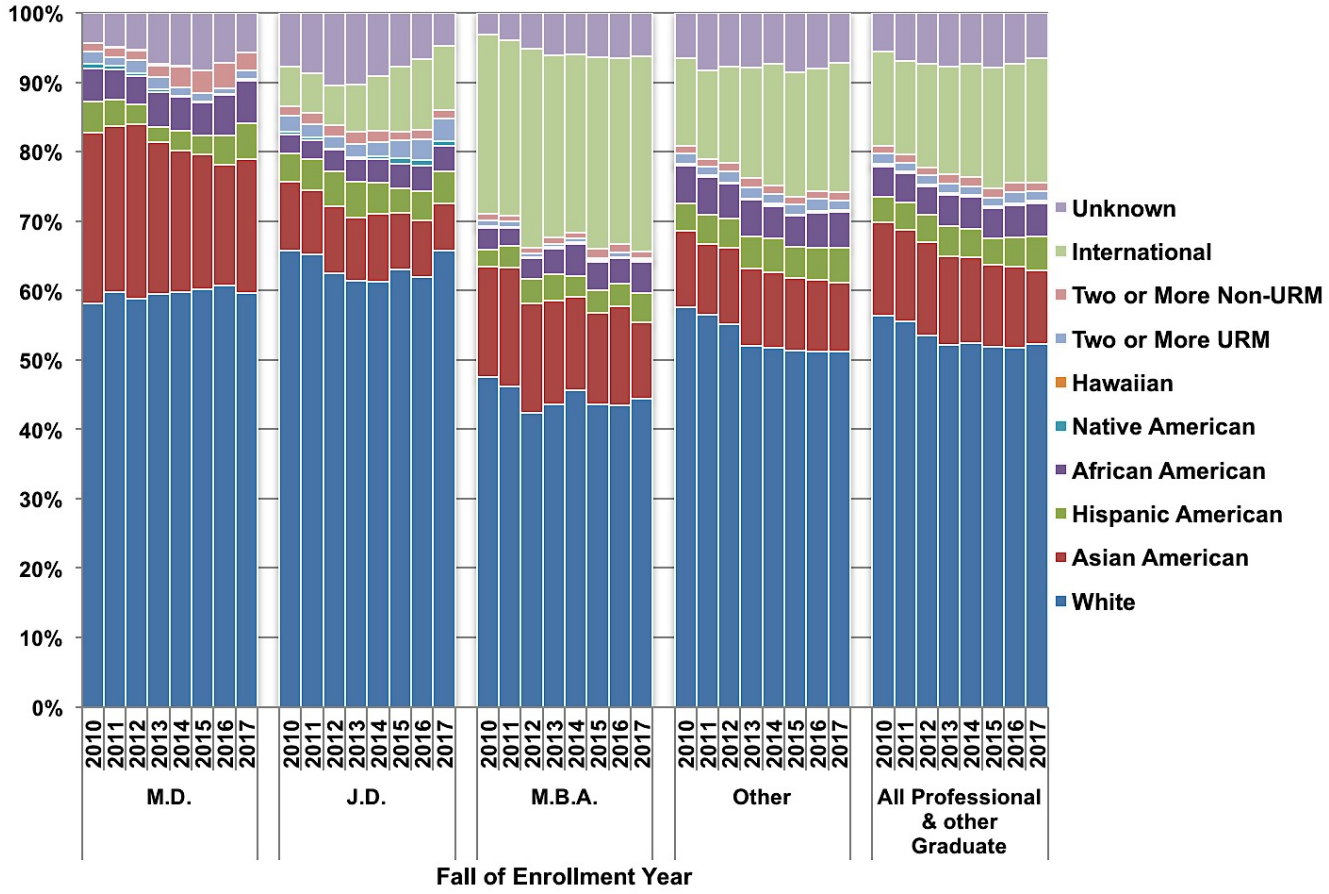



SOURCE: U-M Student Data Sets.

[7] A list of disciplines assigned to each category is published in Appendix C.

## Under-represented minority students make up about 11 percent of U-M's professional and other degree programs enrollment.

### 7.5.5 Race and Ethnicity Distribution of Professional and Other Graduate Students by Program[8], Fall 2010-17.




SOURCE: U-M Student Data Sets.

The U-M awards graduate professional degrees (some of which are referred to as "non-Rackham" degrees) in 11 disciplines. The "Other" category includes the D.D.S., Pharm.D. and D.N.P. professional programs, plus graduate programs in Public Health, Architecture, Engineering, Information, Music and some jointly sponsored degree programs.

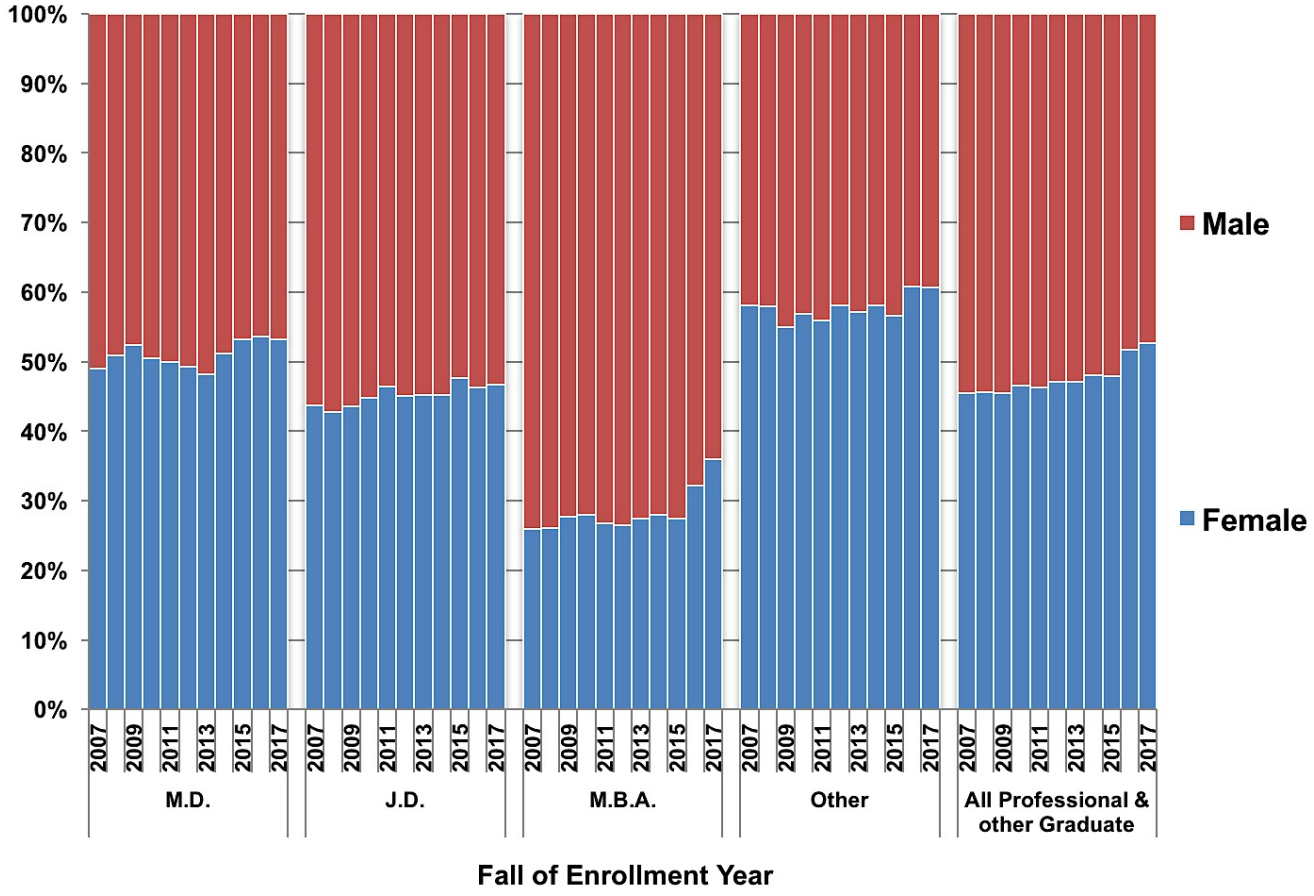
Data for students who identify as Hawaiian, Two or More Under-Represented Minority (URM), or Two or More non-URM are only available for 2010 and later, following a change in federal requirements for collecting race and ethnicity data from students.

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. "Two or More Non-URM" represents individuals selecting more than one ethnicity, none of which are under-represented minorities.

[8] A list of U-M professional and non-Rackham degree programs is published in Appendix D.

## M.B.A students are are now nearly one-third female, while females comprise 45-50 percent of students in M.D. and Law programs.

### 7.5.6 Sex Distribution of Professional and Other Graduate Students by Program[9], Fall 2007-17.




SOURCE: U-M Student Data Sets.

The U-M awards graduate professional degrees (some of which are referred to as "non-Rackham" degrees) in 11 disciplines. The "Other" category includes the D.D.S., Pharm.D. and D.N.P. professional programs, plus graduate programs in Public Health, Architecture, Engineering, Information, Music and some jointly sponsored degree programs.

[9] A list of U-M professional and non-Rackham degree programs is published in Appendix D.

# Chapter 8 Teaching & Learning

## Goals

The University of Michigan provides rich academic and social settings to help students find the right combination of courses and extra-curricular activities to meet their individual needs. Michigan offers an array of opportunities to explore new intellectual territory, understand our global community, and learn through hands-on 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 (3,172), lecturers (945), clinical-track faculty (1,925), and other instructional staff (270), and graduate student instructors (1,971).

The learning and teaching environment at the University has been developed – and is regularly modified – to provide students with the knowledge and skills necessary to succeed 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 that includes faculty and staff.

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

## For More Information

Michigan Learning Communities (lsa.umich.edu/mlc)

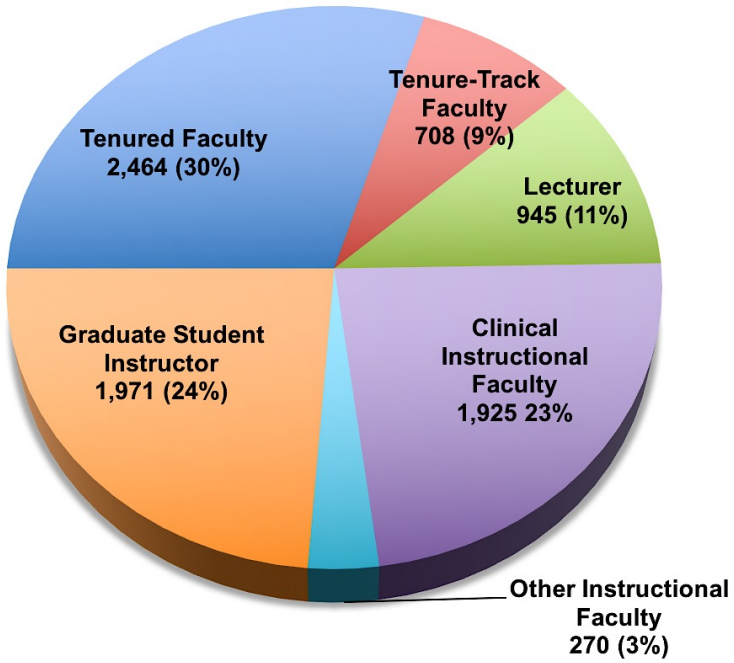
Global Michigan (global.umich.edu/)

*Chart updated since the September 2017 edition.*

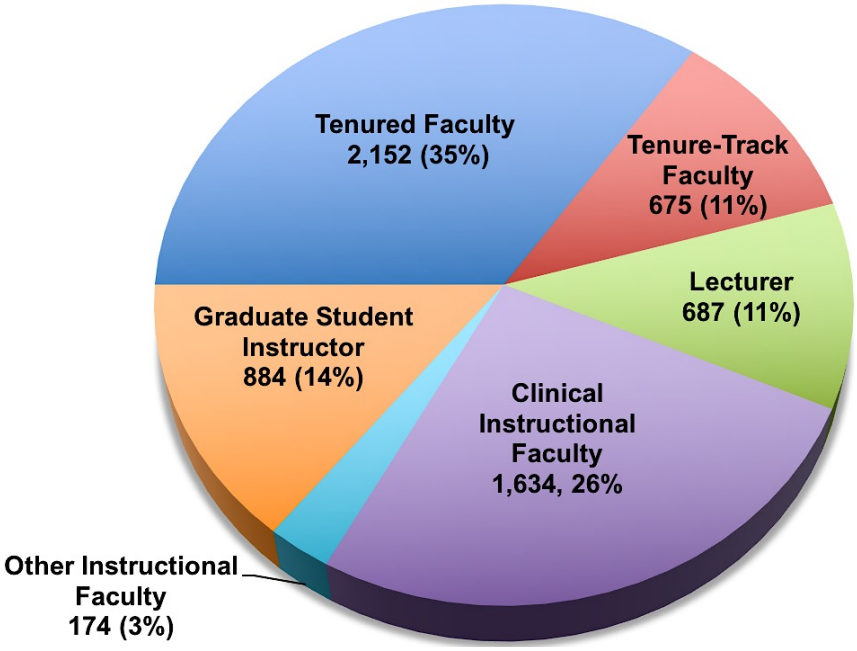
## Charts in Chapter 8

## Tenured and tenure-track faculty members have the primary responsibility for instruction, while often working closely with lecturers, graduate student instructors and other instructional faculty.

### 8.1.1 Instructional Workforce by Job Group and Headcount, Fall 2017.




### 8.1.2 Instructional Workforce by Job Group and Full-Time Equivalents (FTEs), Fall 2017.

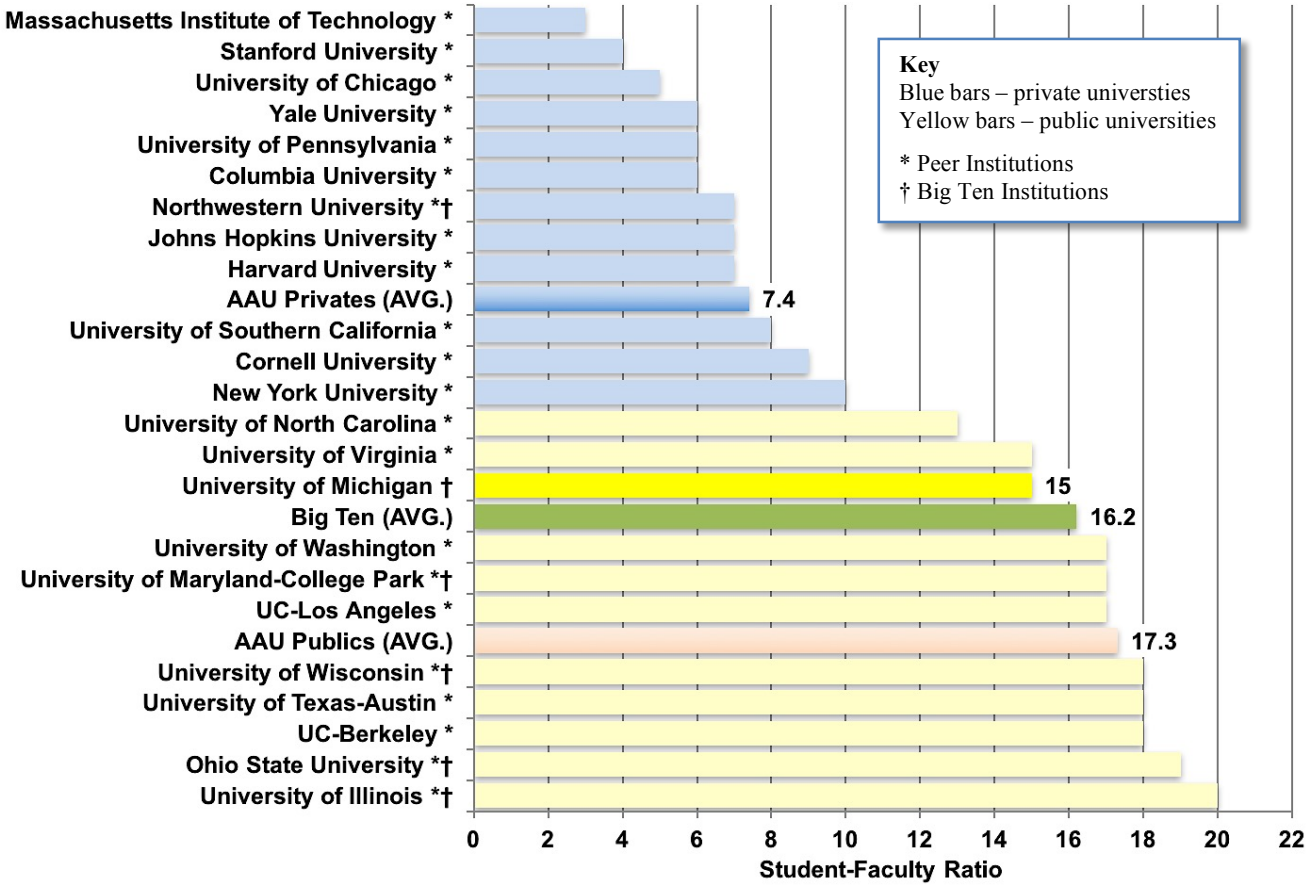



SOURCE: U-M Human Resources Data.

"Other Instructional Faculty" includes non-on-track regular faculty, supplemental instructional faculty, and adjunct lecturers. This chart does not include research and emeritus faculty.

## U-M's ratio of undergraduate students-to-faculty is better the averages of AAU public and Big Ten institutions.

### 8.2 Undergraduate Student-Faculty Ratios for U-M and Peers[1], plus Averages for AAU Public, Private and Big Ten Institutions, Fall 2016.




SOURCE: U.S. News & World Report Best Colleges, 2017 Edition.

All of the universities in the chart are AAU member institutions. (See Appendix A for complete member list.) The AAU public and private institution averages and the Big Ten institution averages are based on all respective member institutions, not just those in the chart.

[1] A list of the peers used for comparison on this page is published in Appendix A.

## 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, 2016-17.

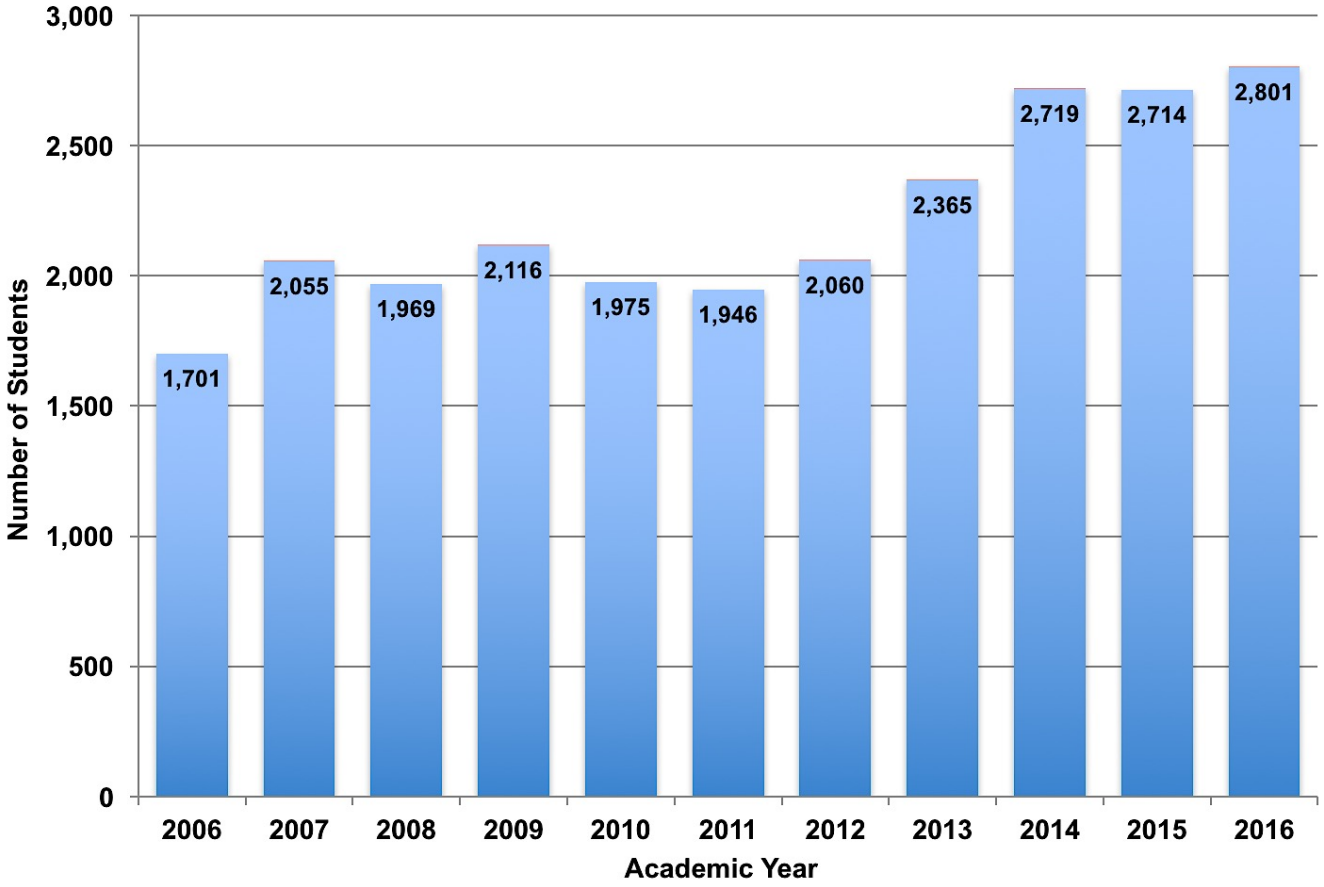
| Program | Freshmen | Sophomores | Juniors | Seniors | *TOTAL* |
|---|---|---|---|---|---|
| **HEALTH SCIENCES SCHOLARS PROGRAM**: For students seeking to explore the health sciences. | **116** | **25** | **3** | **3** | ***147*** |
| **LIVING ARTS**: Brings together students in engineering, the arts, and other fields to explore creativity and innovation. | **88** | **19** | **2** | **1** | ***110*** |
| **LLOYD HALL SCHOLARS PROGRAM**: For students to pursue creative expression through writing, the visual arts, and cultural and social involvement. | **117** | **21** | **5** | **2** | ***145*** |
| **MICHIGAN COMMUNITY SCHOLARS PROGRAM**: For students interested in community service, civic engagement, and social justice. | **112** | **45** | **3** | **4** | ***164*** |
| **MICHIGAN RESEARCH COMMUNITY**: For students interested in a research partnership with a faculty member and a small, diverse, and supportive residential community. | **114** | **36** | **4** | **1** | ***155*** |
| **WOMEN IN SCIENCE AND ENGINEERING RESIDENCE PROGRAM**: For students with interests in the sciences, technology, engineering, mathematics, and health fields. | **116** | **26** | **4** | **1** | ***147*** |
| **GLOBAL SCHOLARS PROGRAM**: Prepares students to be interculturally competent global citizens, champions for meaningful change, and innovative leaders of tomorrow. | | **54** | **59** | **42** | ***155*** |
| **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. | | **7** | **10** | **10** | ***27*** |
| **HONORS PROGRAM**: Offers special academic challenge to highly motivated students, personalized advising, research opportunities, close faculty contact and optional housing. | **518** | **547** | **414** | **385** | ***1,864*** |
| **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. | **233** | **176** | **198** | **214** | ***821*** |
| **COMPREHENSIVE STUDIES PROGRAM**: This program provides small enriched courses, academic advising and academic support and tutoring. | **520** | **626** | **577** | **1,008** | ***2,731*** |
| **UNDERGRADUATE RESEARCH OPPORTUNITY PROGRAM**: Students participate in research, working with faculty from all academic fields. | | | | | ***~1,300*** |
| **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. | **203** | **12** | **9** | **4** | ***228*** |
| **TRANSFER CONNECTIONS**: for transfer students interested in being in a small peer group connected with current U-M students who were also transfer students. | | **42** | **89** | **5** | ***136*** |

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 study abroad for academic credit continues to grow.

### 8.4.1 Student Participation in Study Abroad for Credit, AY2006-16.




SOURCE: "Open Doors," Institute for International Education

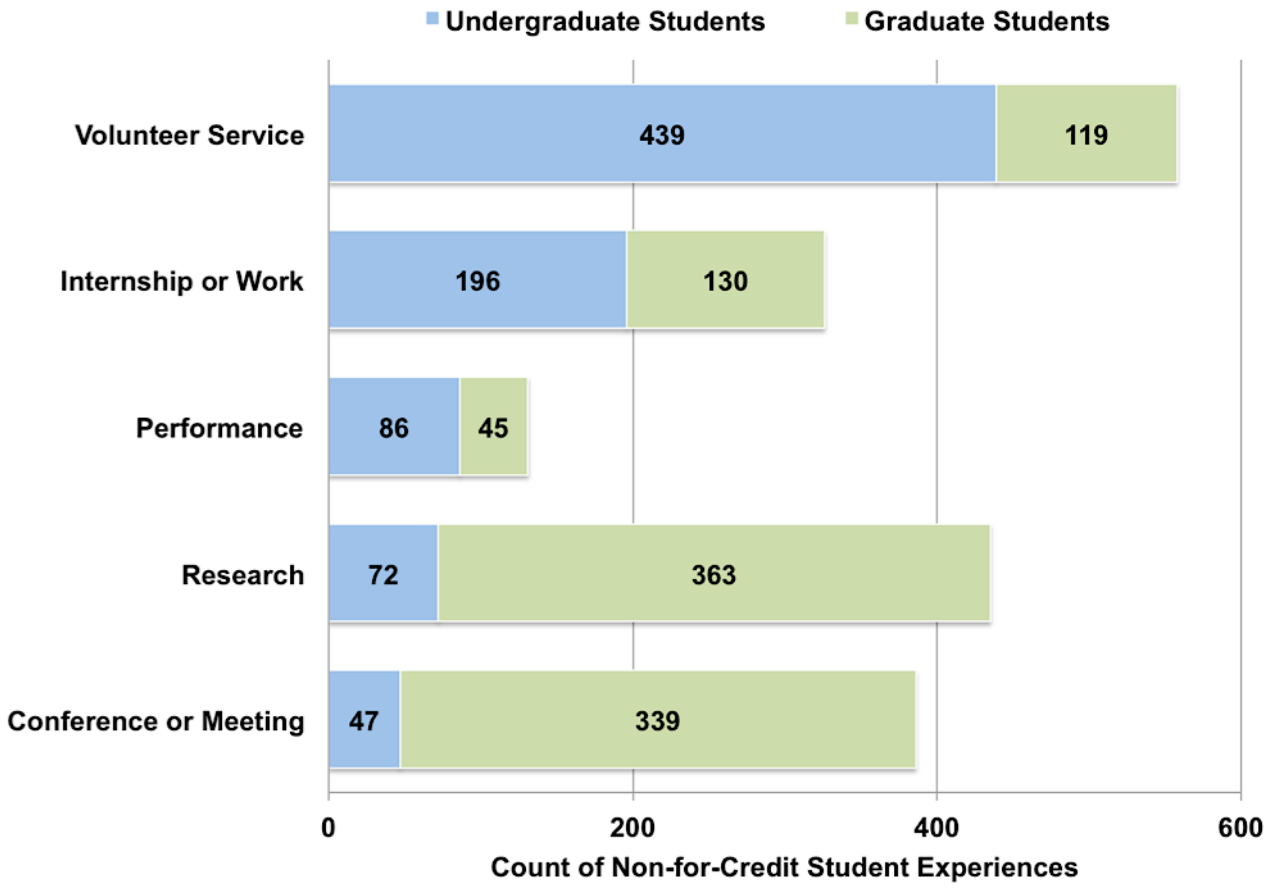
For academic year 2016, the U-M ranked sixth nationally among universities in the number of students involved in study abroad, according to the 2017 Open Doors Report published by the Institute for International Education (iie.org/Research-and-Insights/Open-Doors). The 2016 total of 2,801 undergraduate and graduate students earning academic credit in programs outside the United States is a 3.2-percent increase over the 2015 total of 2,714 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. The recent growth in the number of student participating in study abroad may be due in part to a new method for recording student participation that was instituted in 2014.

A significant number of U-M students also participate in non-credit programs outside the U.S. These programs, usually referred to as "Co-curricular education," include participation in research, internship, volunteer service, work opportunities, and conferences and professional meetings.

## U-M students engaged in several types of international, non-credit learning experiences.

### 8.4.2 Student Participation in Not-for-Credit International Experiences, by Level, 2013-14.

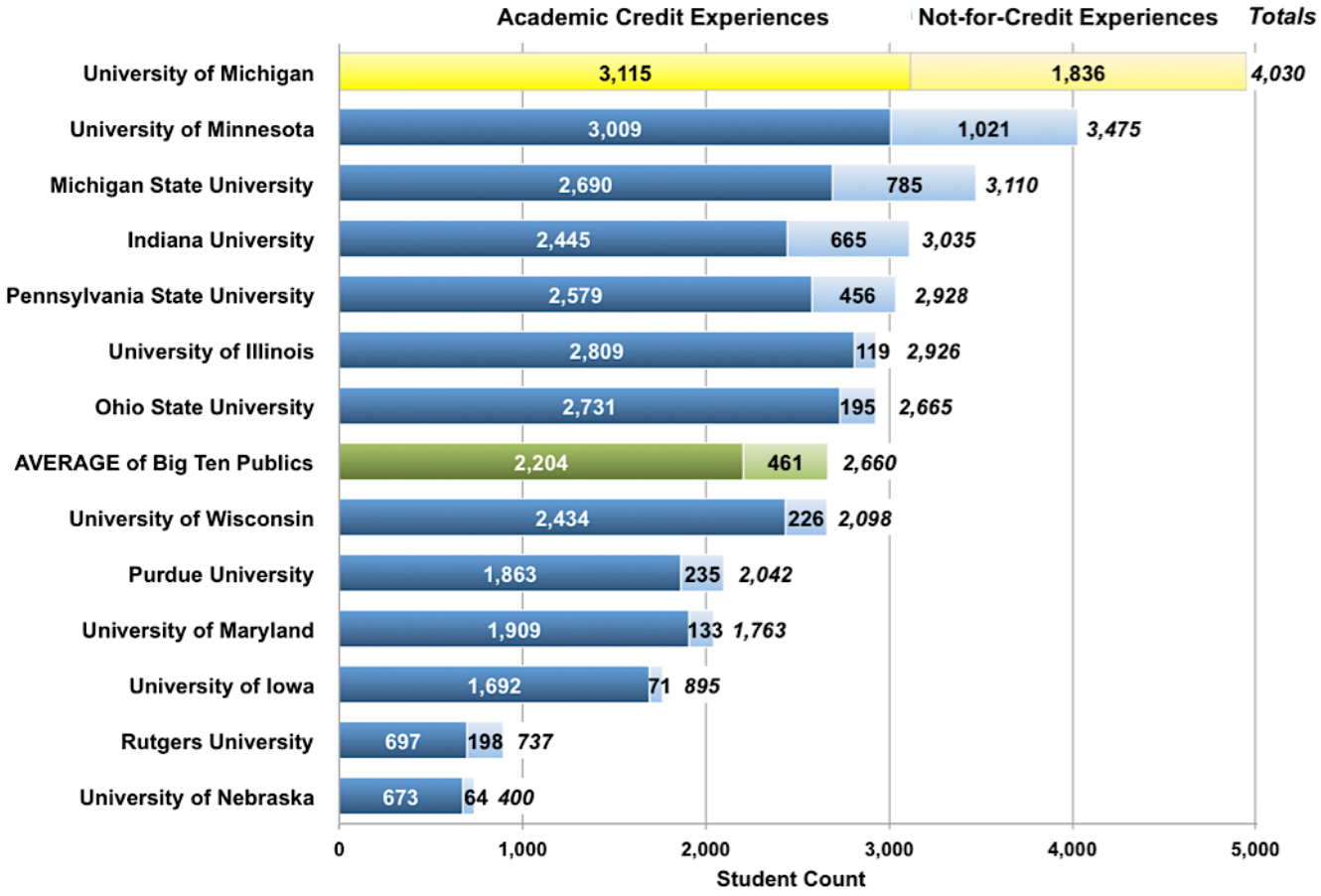



SOURCE: U-M Student Records

U-M students engaged in 1,836 co-curricular (not-for credit) experiences during the 2013-14 during academic year (840 by undergraduate students and 996 by graduate students).

## U-M leads the Big Ten in number of international student experiences.

### 8.4.3 Student Participation in International Learning Experiences at Big Ten Public Universities, 2013-14.



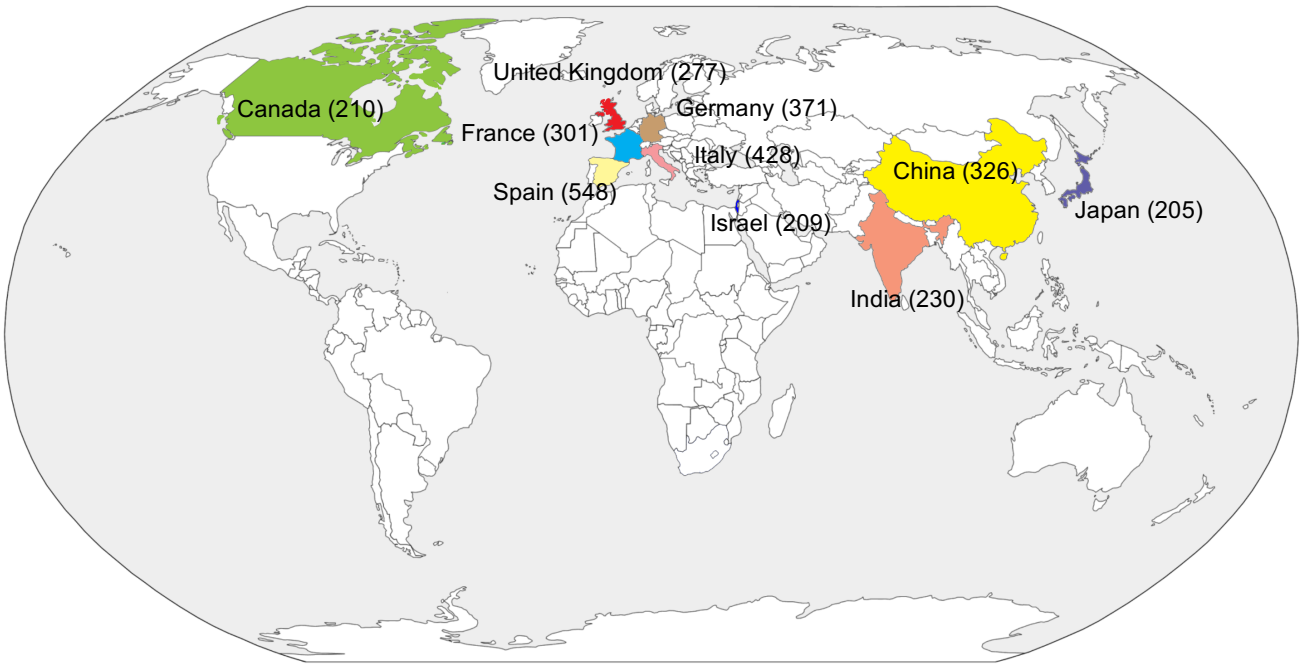

SOURCE: CIC International Learning Mobility Benchmark, November 2015.

U-M students engage in more learning experiences outside the United States than their counterparts at other Big Ten public universities, according to the findings of a report assembled by Committee on Institutional Cooperation (CIC) members.

The bar chart shows the count of credit-bearing study abroad experiences (U-M in yellow, other Big Ten publics in dark blue, average of Big Ten publics in dark green), not-for-credit experiences (U-M in light yellow, other Big Ten publics in light blue, average of Big Ten publics in light green) and the sum of credit/non-credit experiences in italics to right of each bar.

## U-M students travel to more than 100 countries for international experiences.

### 8.4.4 Top Ten Education Abroad Destinations, by Country and Student Count, 2016-17.



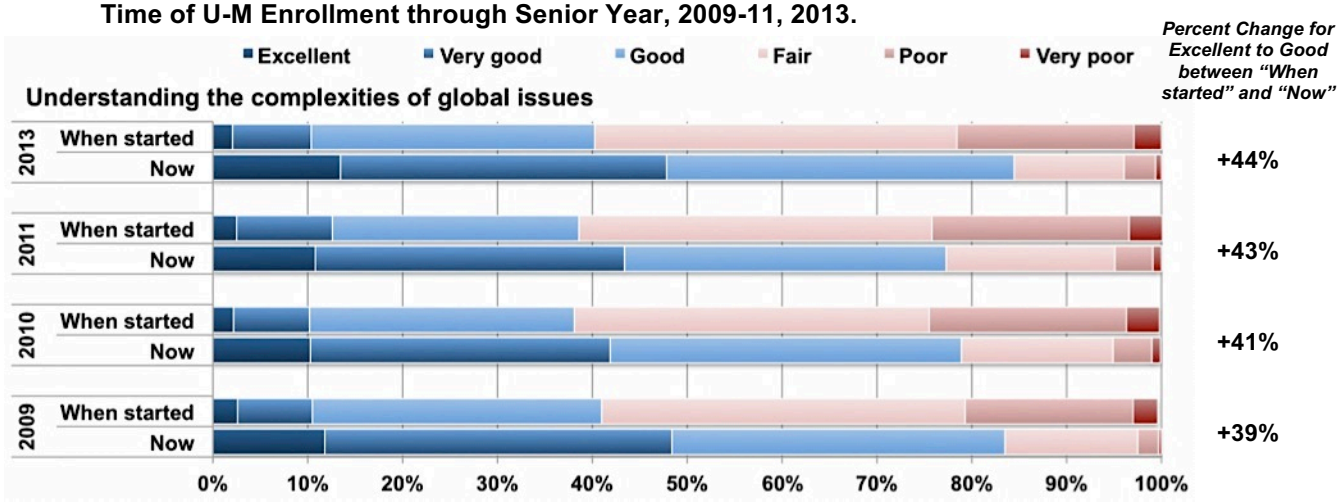

SOURCE: Education Abroad at the University of Michigan, Academic Year 2016-2017 Report.

During academic year 2015-16, U-M students spent time in 139 countries for educational and co-curricular experiences.

## By the time they reach their senior year, many undergraduates report involvement in and a greater understanding of global or international topics.

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


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

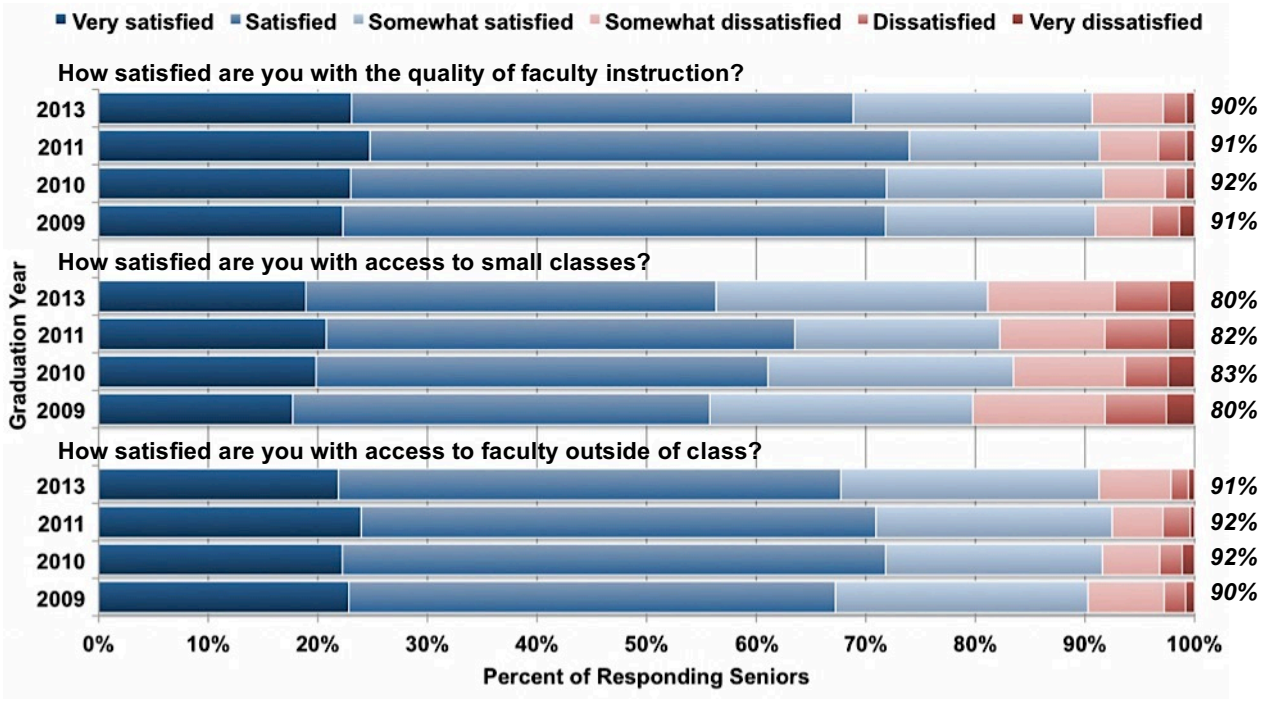



SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

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.

### 8.5 Self-Reported Satisfaction of Seniors with Instructional Quality and Access to the Faculty, 2009-11, 2013.

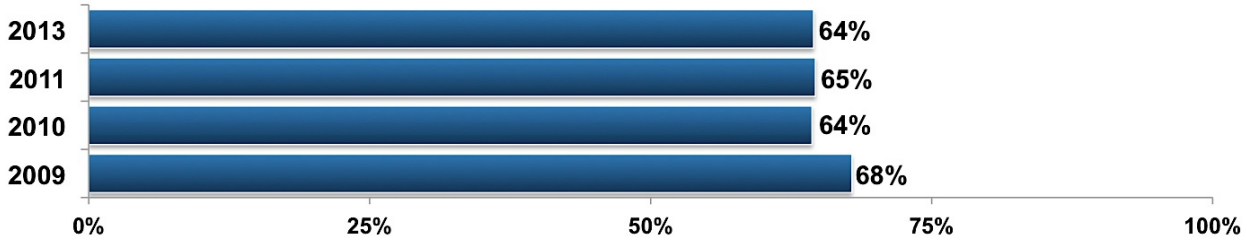



SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

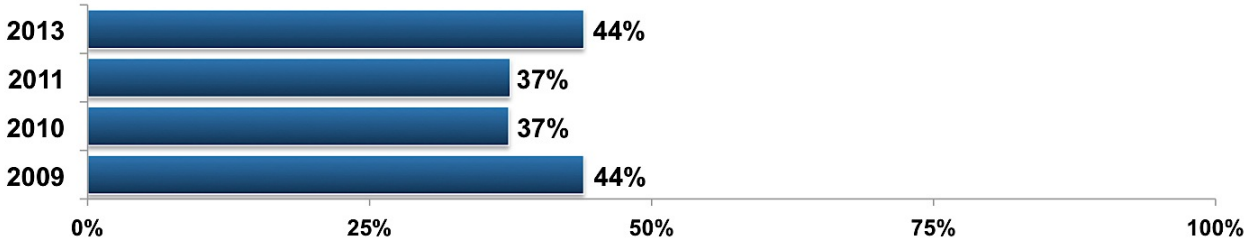
The percentage to the right of each bar is the sum of the fractions who replied "Very satisfied," "Satisfied," and "Somewhat satisfied" (the segments in shades of blue).

## More than three-fifths of undergraduate seniors participate in research or a creative endeavor with a faculty member while at Michigan.

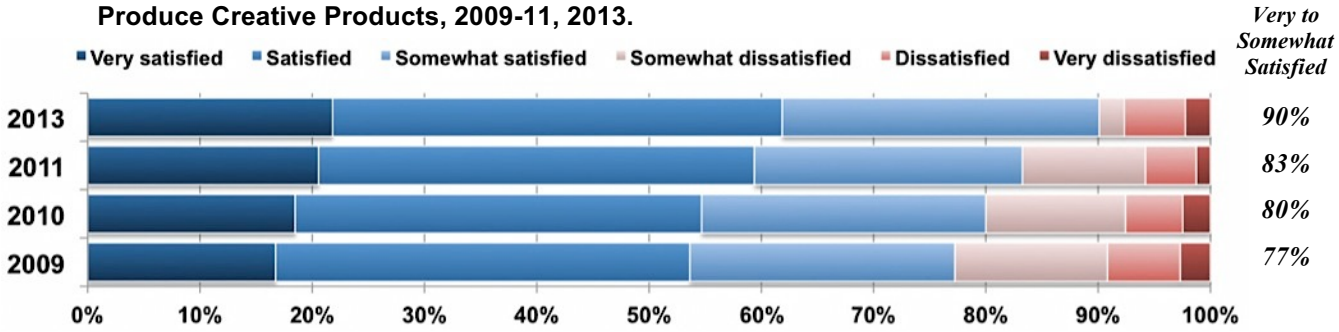
### 8.6.1 Self-Reported Participation of Seniors with Faculty in Research or a Creative Project in the Current Academic Year, 2009-11, 2013.




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




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



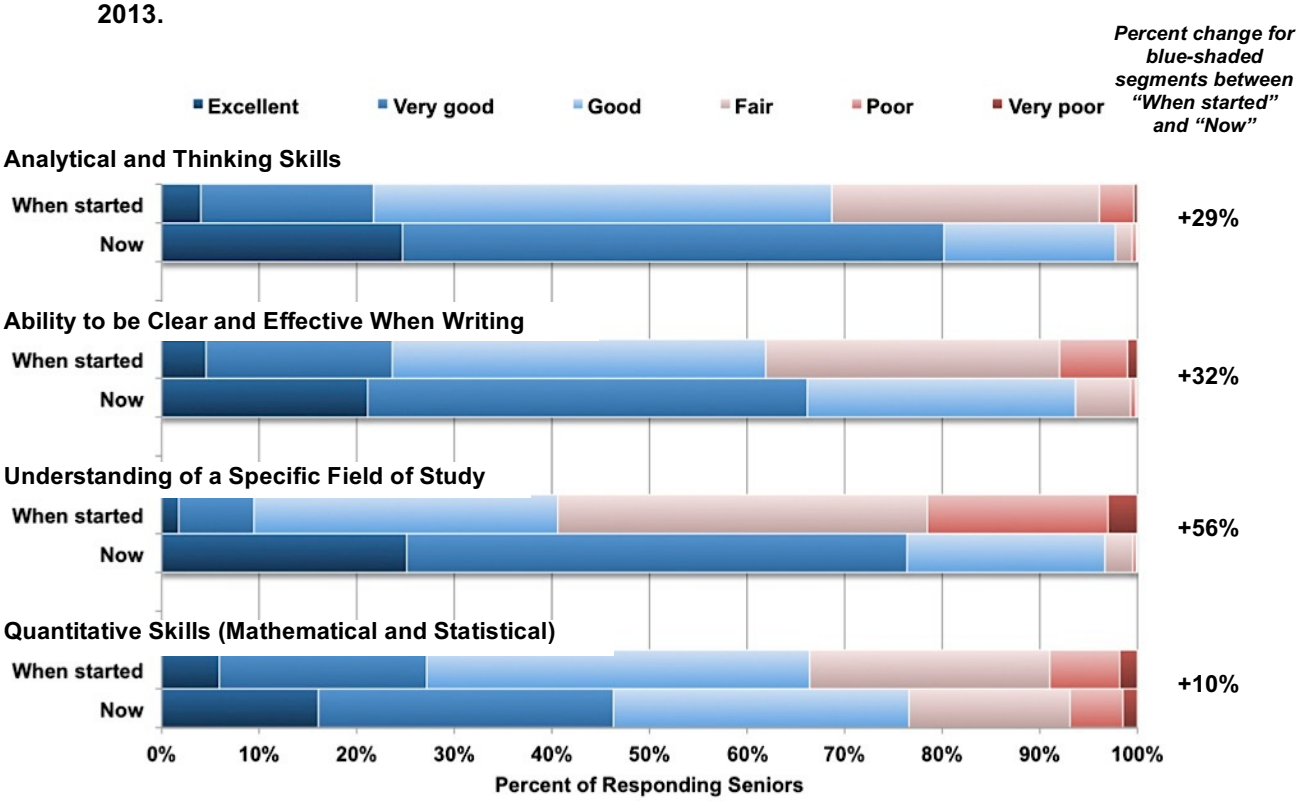

SOURCE: University of Michigan Asks You (UMAY) undergraduate survey.

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 gave any response other than "Never" to the question: During this academic year, how frequently have you participated in a research-oriented seminar with faculty?"

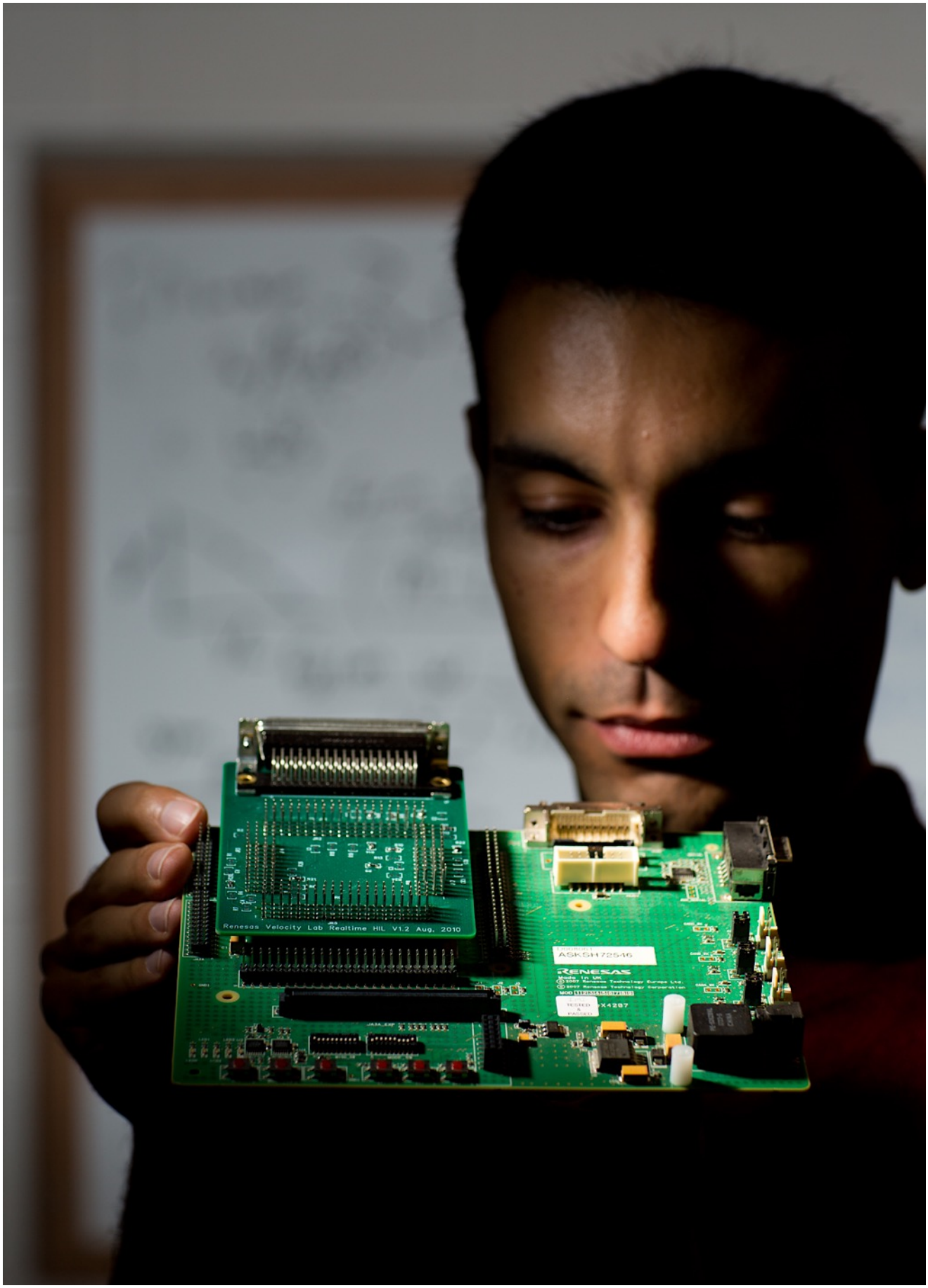
## Students report gains in their academic skills and knowledge between the time they started at Michigan and their senior year.

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




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).


Renesas Velocity Lab Realtime HIL V1.2 Aug. 2010
RENESAS

# 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, overall size, and emphasis on interdisciplinary approaches of the U-M's research program contributes to university's standing as one of the world's leading research institutions. As such, the faculty attracts generous financial support from the public and private sectors.

The University expects that research by many of faculty discoveries will contribute to the development of innovative products and processes. The U-M places a high priority on supporting this kind of activity through the Office of Technology Transfer and the Business Engagement Center.

## Overview

This chapter largely examines data about externally funded projects. Total research expenditures by the University from all sources (external and University funds) exceed $1.4 billion per year, which ranks U-M No. 2 in the nation among all universities and No. 1 among public universities. Seventy percent of U-M's research spending is provided by outside sources, while the largest share of research funding comes from the federal government.

The University's largest fraction of grant-supported work occurs in the biomedical and clinical sciences. The U-M Medical School alone regularly attracts close to $300 million each year in research funding.

Some research is of special interest to the private sector. The Office of Technology Transfer works with faculty inventors to file patents and negotiate licensing agreements that benefit the University's industry partners and fund additional research and development work on campus. In certain instances, 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 designates funds to interdisciplinary teams whose work has potential for broad societal impact.

## For More Information

U-M Office of Research (research.umich.edu/)

Office of Technology Transfer (techtransfer.umich.edu/)

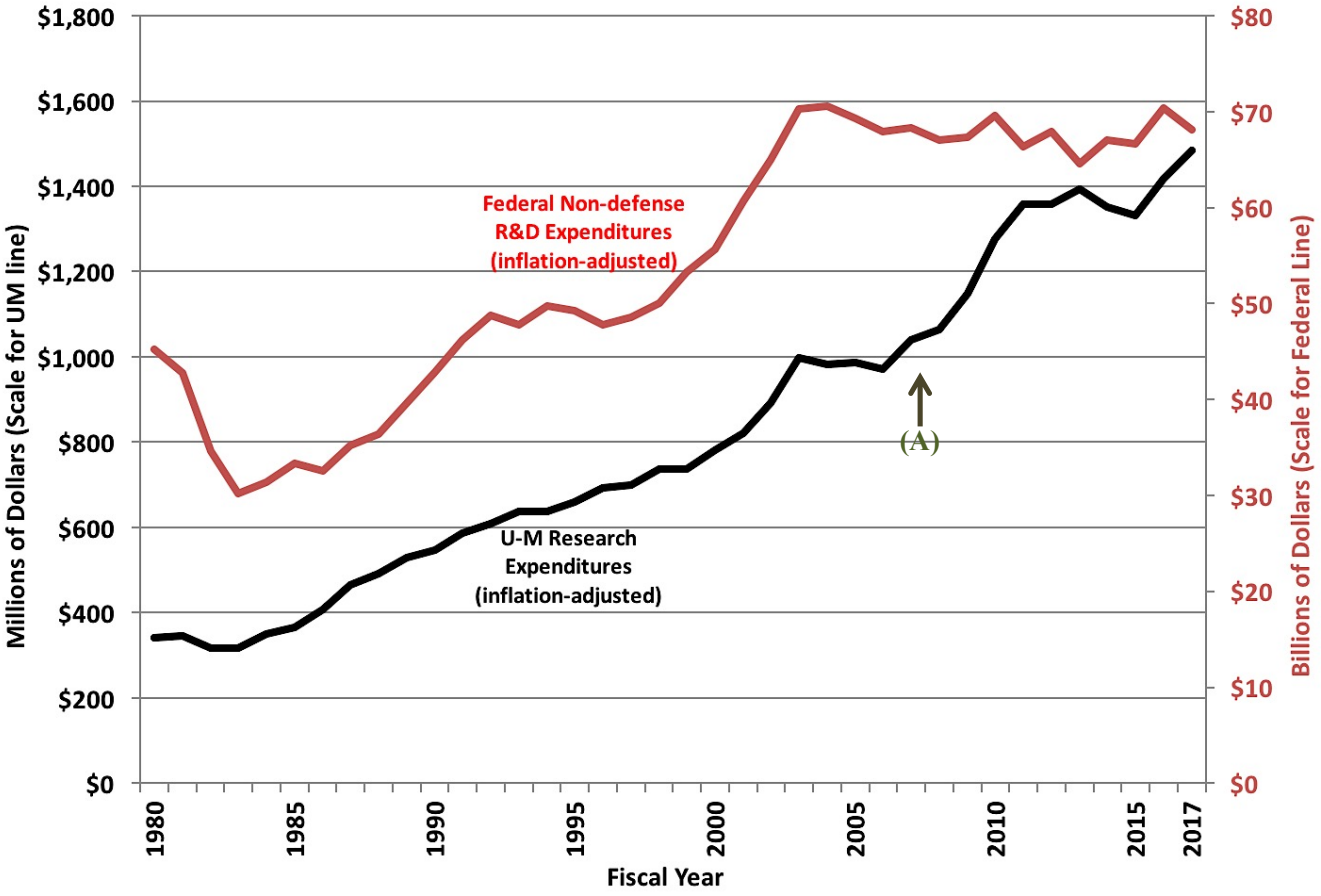
Business Engagement Center (bec.umich.edu/)

*Chart updated since the September 2017 edition.*

## Charts in Chapter 9

## During the last three decades, total research expenditures (adjusted for inflation) for all three U-M campuses from all sources (including U-M funds) have more than quadrupled.

### 9.1.1 Total Research Expenditures, Adjusted for Inflation[1], 1980-2017.




SOURCE: U-M Financial Operations.

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 spending[2].

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.

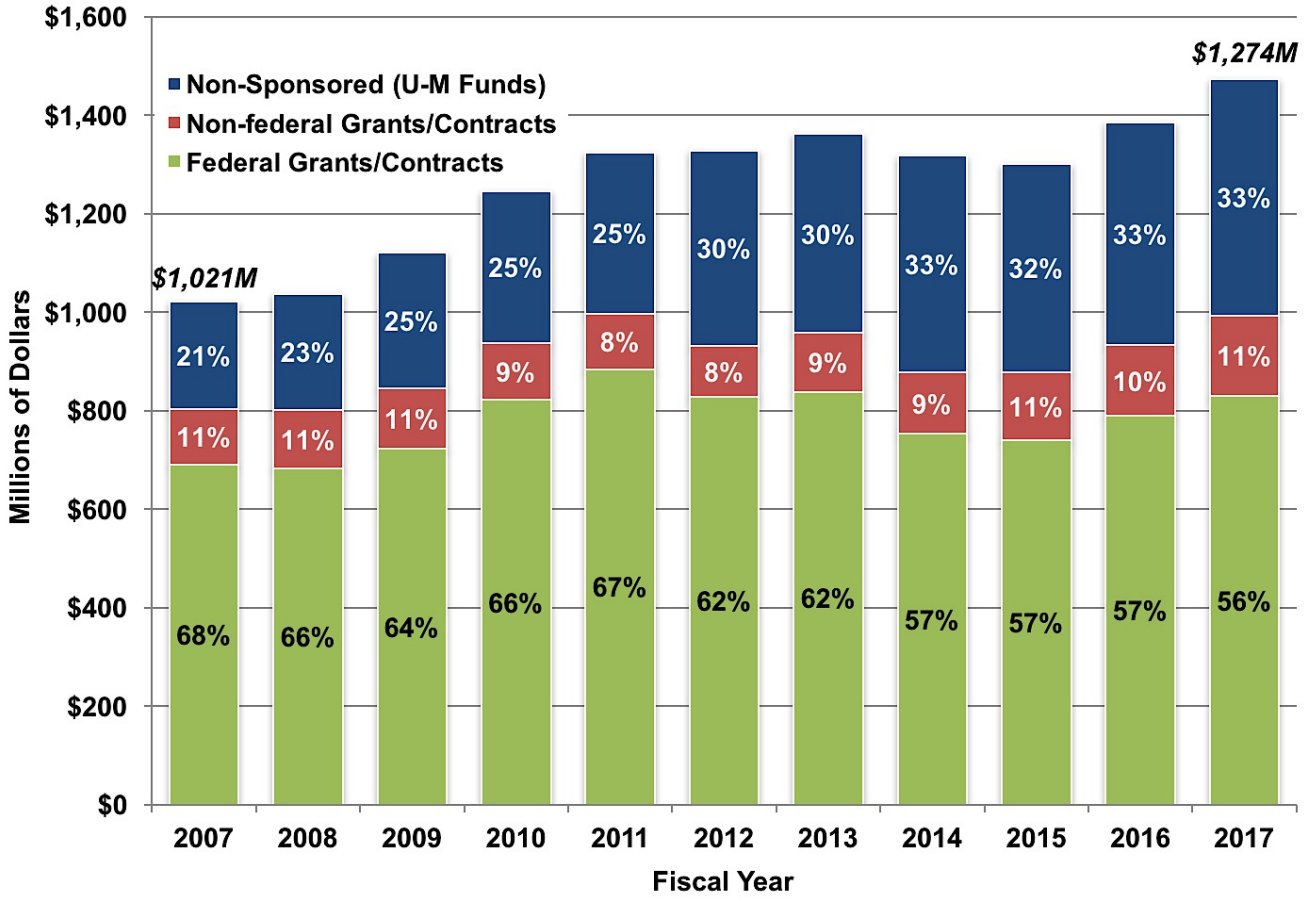
The total Federal Non-defense R&D Expenditures is estimated for 2017; a final figure is not available yet.

[1] Based on 2017 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 cover less than 60% of U-M research expenditures.

### 9.1.2 Research Expenditures by Major Funding Source, Adjusted for Inflation[3], FY2007-17.



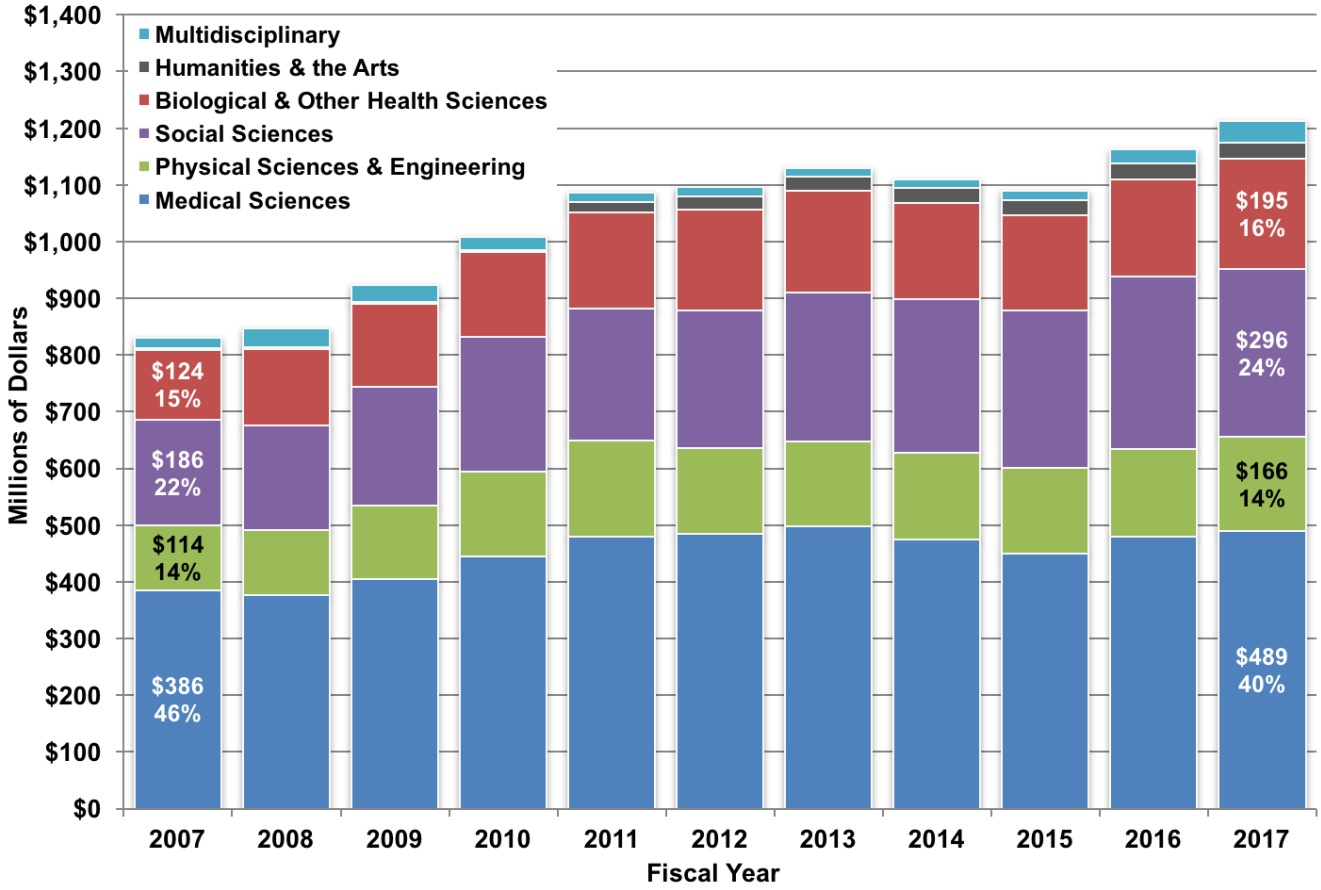

Source: U-M Financial Operations.

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 2017 U.S. Consumer Price Index.

## Direct research expenditures increased in FY2017 for the third year in row.

### 9.1.3 Direct Research Expenditures by Discipline, Adjusted for Inflation[4], FY2007-17.



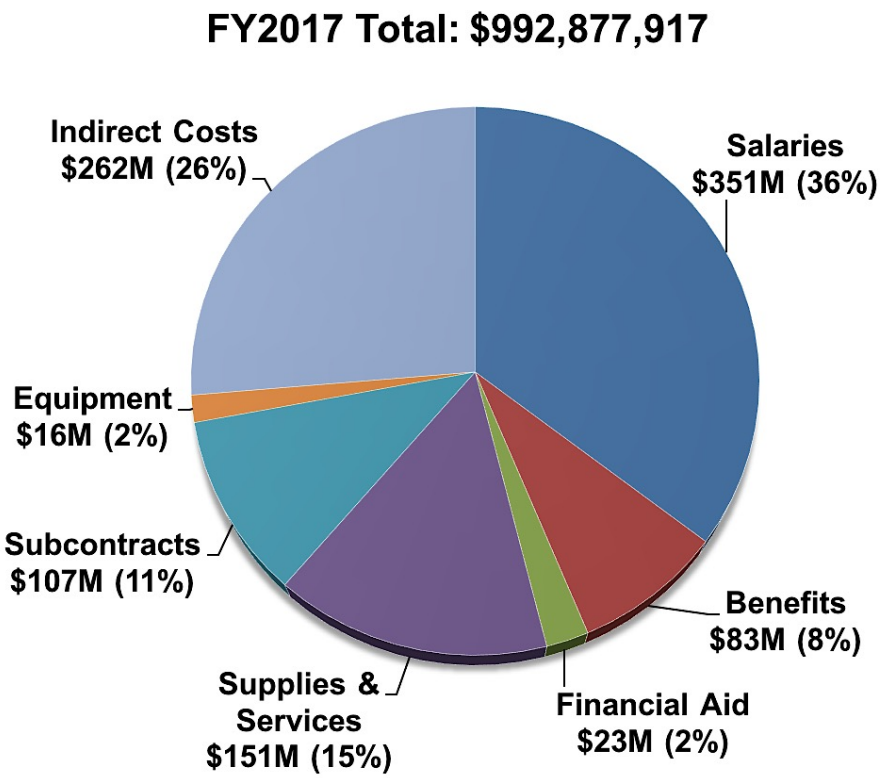

SOURCE: U-M Financial Data.

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 for items such as utilities, administration, and general maintenance of research facilities – known as "indirect" costs – that supports the entire research enterprise.

[4] Based on 2017 U.S. Consumer Price Index.

**About 45 percent of the total annual sponsored research expenditures on the Ann Arbor campus goes to salaries and benefits for faculty, staff and graduate students.**

### 9.1.4 Sponsored Research Expenditures by Type, FY2017.




SOURCE: U-M Financial Operations.

The FY2017 total externally funded research expenditures for the Ann Arbor campus was $992.9 million, which is an increase of $60.4 million from the previous year. Salaries and benefits is largest cost component.

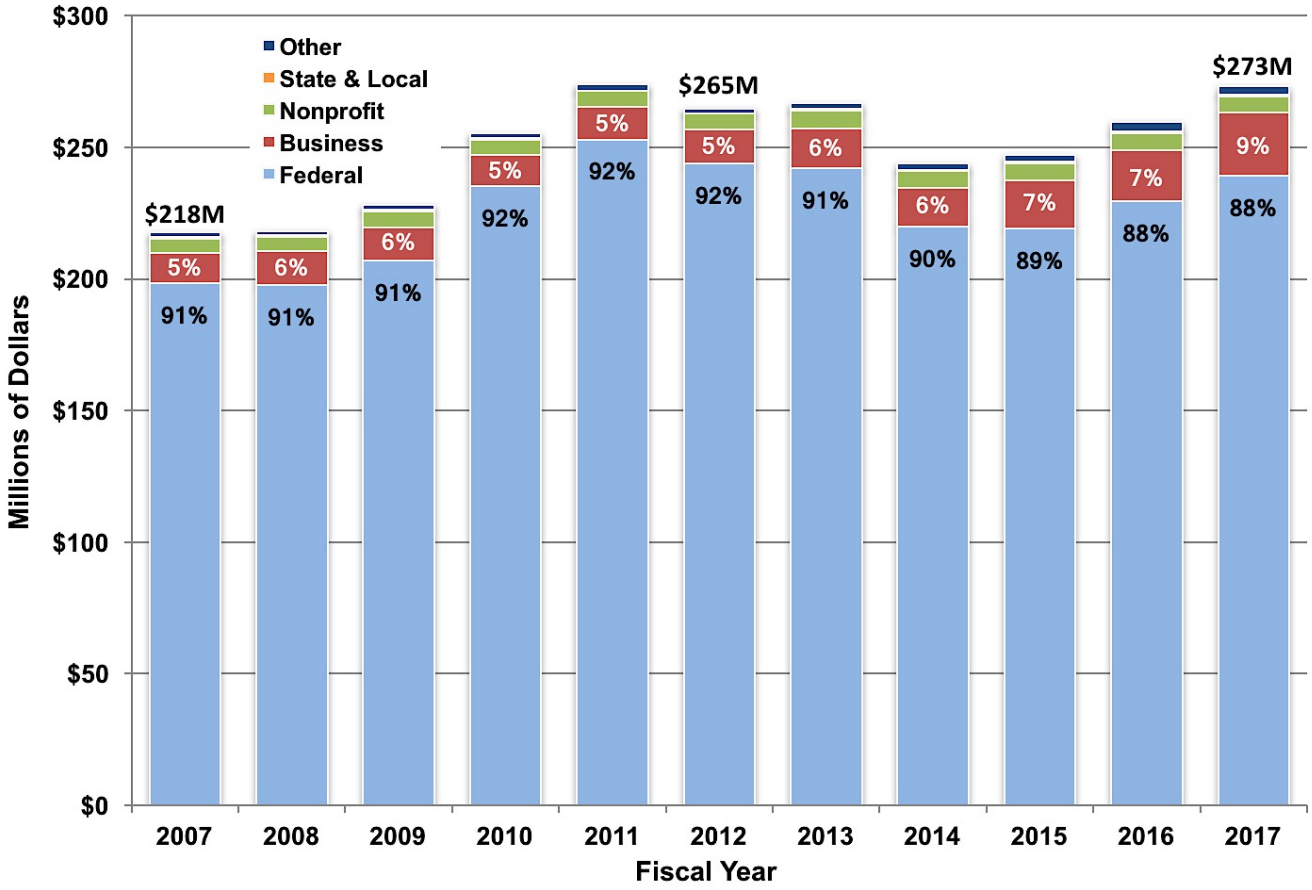
Indirect costs (IDC) are the costs of University operations that are not assigned to a particular project, such as the costs for general research administration, utilities use in research space, and other services that contribute broadly to the operation of the University's research enterprise.

For FY2017, 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 recovery rate for research funded by the Federal government or industry is 55 percent for on-campus research and 26 percent for off-campus research.

The indirect cost recovery rates charged to non-federal sponsors, such as foundations, State of Michigan agencies, and private companies, vary according to the sponsor's policies or through negotiations with the sponsor. In such situations, the recovery rate may not cover the actual expenses incurred by the U-M to support some of these projects.

## Federal sponsored projects provide nearly 90 percent of indirect cost recovery funds.

### 9.1.5 Sponsored Research Indirect Cost Recovery by Source, Adjusted for Inflation[5], FY2007-17.



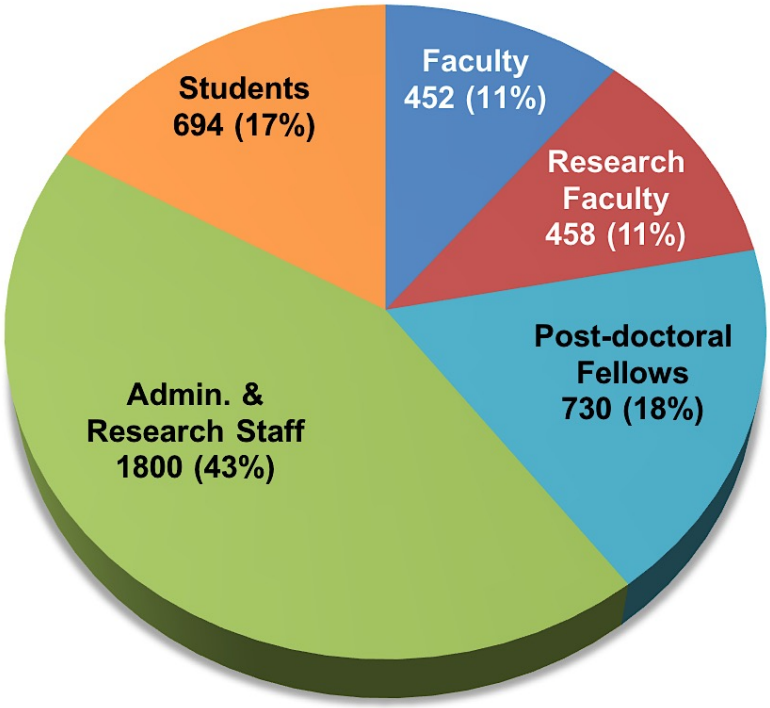

SOURCE: U-M Financial Data.

The peak in indirect cost recovery for FY2011 is largely due to the bump provided by federal "stimulus" funds that had supported research. The inflation-adjusted total indirect cost recovery is still down by 5 percent since the 2011 peak year.

[5] Based on 2017 U.S. Consumer Price Index.

## A fall 2016 snapshot of personnel paid under sponsored projects shows that grants and contracts fund the full-time equivalent of 4,134 faculty members, post-docs, staff and students.

**9.2 Research Workforce by Full-Time Equivalents (FTEs), Fall 2016.**




SOURCE: U-M Human Resources Data.

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 2016 total represents an decrease of 24 FTEs (0.6 percent) supported on sponsored projects compared to Fall 2015.

## U-M spends more on research than any other U.S. public university.

### 9.3 University R&D Expenditures, U-M and Other Leading Institutions, FY2012-16.

| Institution[6] | FY2012 | FY2013 | FY2014 | FY2015 | FY2016 |
|---|---|---|---|---|---|
| Johns Hopkins[7] | $2,106M | $2,169M | $2,242M | $2,306M | $2,145M |
| MICHIGAN | $1,323M | $1,375M | $1,349M | $1,369M | $1,436M |
| Pennsylvania | $847M | $828M | $828M | $864M | $1,296M |
| UC San Francisco | $1,033M | $1,043M | $1,084M | $1,127M | $1,294M |
| Washington | $1,109M | $1,193M | $1,176M | $1,181M | $1,278M |
| Wisconsin | $1,170M | $1,124M | $1,109M | $1,069M | $1,158M |
| UC San Diego | $1,074 | $1,076M | $1,067M | $1,101M | $1,087M |
| Harvard | $799M | $1,013M | $934M | $1,014M | $1,077M |
| Stanford | $903M | $945M | $959M | $1,023M | $1,066M |
| Duke | $1,010M | $993M | $1,037M | $1,037M | $1,056M |

SOURCE: National Science Foundation, Higher Education Research and Development Survey.

The U-M has been the nation's leading public university in total research spending for the past five years. Total expenditures include research spending from government sources, non-government sources, and the institution's own budget.

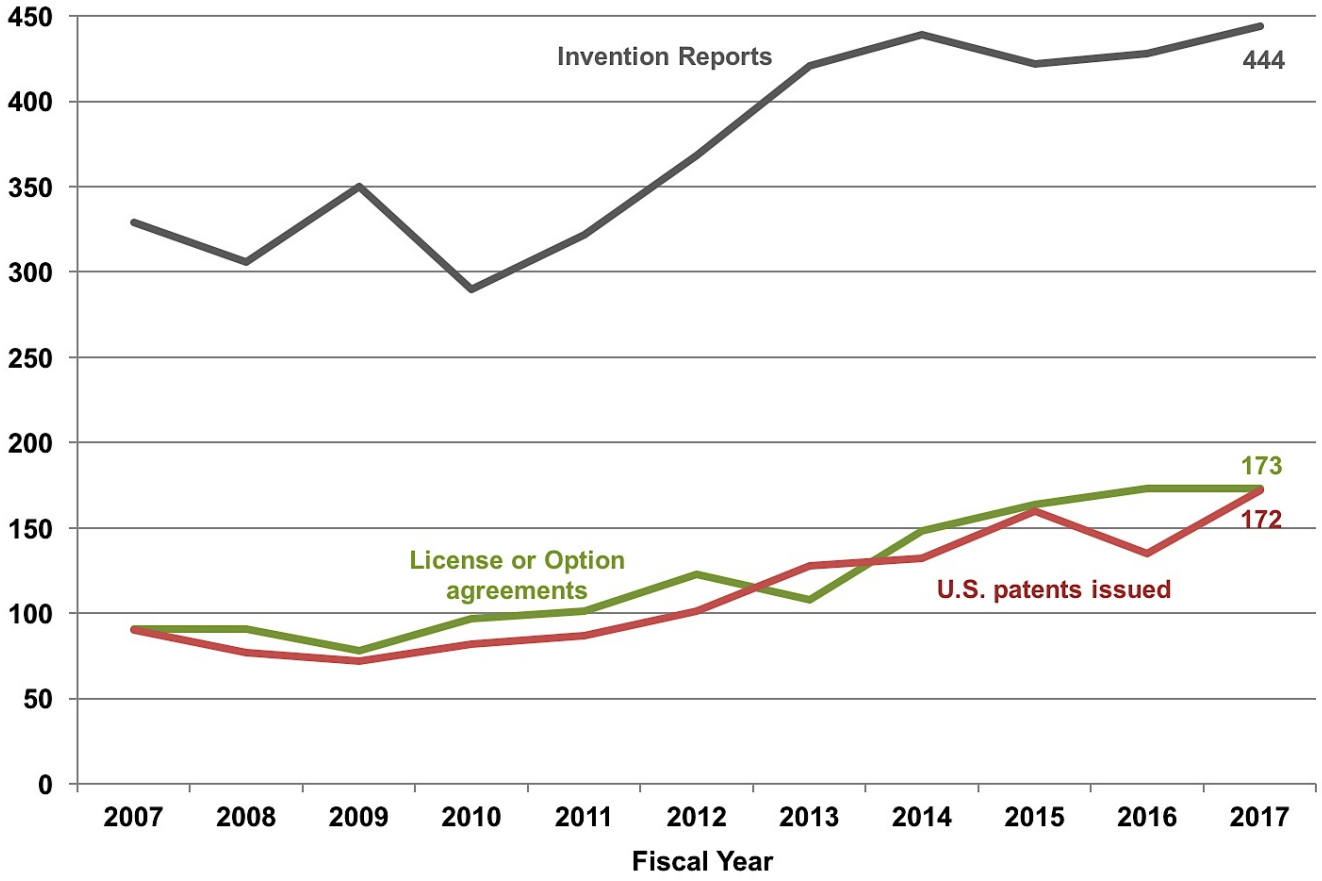
The list above is ordered by total research expenditures for FY2016. Data for public universities are shaded in yellow; private university data are shaded in blue.

[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.

[7] Johns Hopkins University expenditures include those by the Applied Physics Laboratory. In FY2016, APL R&D expenditures totaled $1.403M, 58% of JHU's total for the year.

## Since 2007, U-M faculty, staff and students have reported 4,119 inventions, 1,347 licensing agreements, and 1,236 U.S. patents.

### 9.4.1 Invention Reporting, Licensing and U.S. Patent Activity at the U-M, FY2007-17.

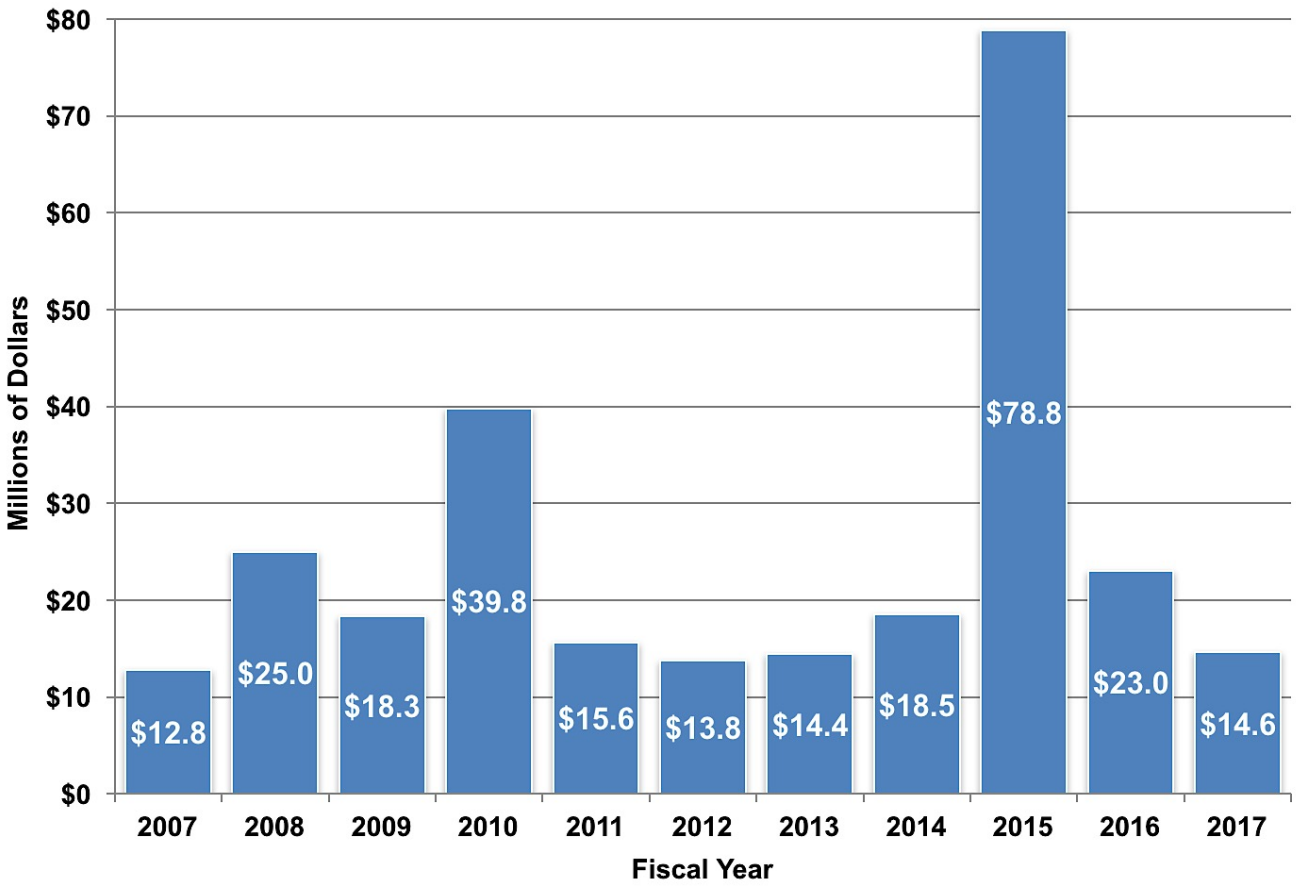



SOURCE: U-M Office of Technology Transfer.

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. Patents protect 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 $275 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, FY2007-17.




SOURCE: U-M Office of Technology Transfer.

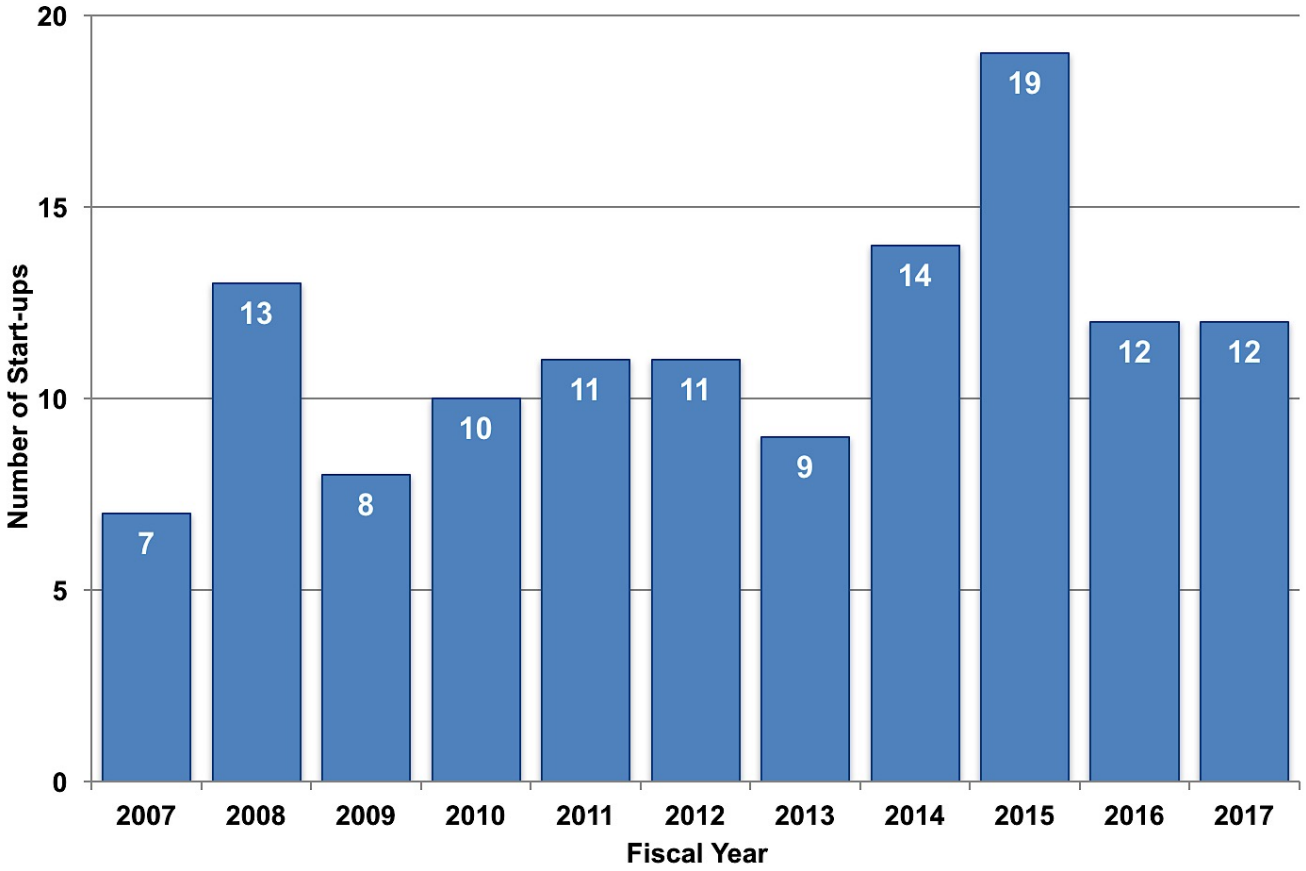
Revenues from licensing agreements support technology transfer operations as well as provide valuable resources for investment in research, education, and innovation.

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.

Royalty revenues reached an all-time high in FY2015. Nearly $75 million of that total comes from a new royalty agreement connected to a drug to help patients with Gaucher disease that was developed at U-M, according to the Medical School.

## Since 2007, 126 new companies employing U-M discoveries have been launched.

### 9.4.3 Formation of Start-up Companies that Utilize U-M Technology, FY2007-17.




SOURCE: U-M Office of Technology Transfer.

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.

Porfolio of U-M start-ups: techtransfer.umich.edu/about/startups.php

## By several indicators of technology transfer activity, the U-M ranks highly compared to leading U.S. universities according to research expenditures[7].

**9.5 Technology Transfer Indicators for the U-M and Research-Intensive Universities, FY2015.**

| Institution (FY2015 R&D Expenditures) | Invention Reports | Issued Patents | New Agreements | Startups | License Revenue |
|---|---|---|---|---|---|
| **Johns Hopkins ($2,306M)** | **517** | **122** | **149** | **16** | **$17.9M** |
| **MICHIGAN ($1,369M)** 2nd | **422** (5th) | **159** (4th) | **164** (3rd) | **12** (6th) | **$78.8M** (2nd) |
| **Washington ($1,181M)** | **373** | **81** | **337** | **15** | **$42.8M** |
| **Wisconsin ($1,069M)** | **387** | **161** | **70** | **6** | **$40.0M** |
| **Duke ($1,037M)** | **229** | **79** | **162** | **7** | **$36.8M** |
| **Stanford ($1,023M)** | **483** | **232** | **112** | **28** | **$95.1M** |
| **Harvard ($1,014M)** | **354** | **50** | **268** | **16** | **$18.5M** |
| **North Carolina ($967M)** | **399** | **103** | **157** | **16** | **$42.0M** |
| **Cornell ($954M)** | **318** | **40** | **99** | **11** | **$2.5M** |
| **MIT ($931M)** | **795** | **314** | **124** | **28** | **$34.8** |

SOURCE: Association of University Technology Managers.

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 to the National Science Foundation Higher Education Research & Development Survey for FY2015.

The indicator value in each category is highlighted in green. Data for public universities are shaded in yellow; private university data are shaded in blue.

[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.

# 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 a complex endeavor. Cost containment is important, both to allow for reallocation of resources due to projected slow revenue growth as well as to fund new investments in financial aid, faculty, academic programs, research, diversity and emerging priorities. 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. For example, the FY2018 state appropriation is roughly equal to the FY1998 appropriation, and that does not take into account the decreased buying power of today's dollars compared to 20 years ago.

As state support has declined, the University has been forced to raise tuition to support operations and financial aid, as well as trying to increase research grants and fundraising.

As part of the FY2018 budget, the U-M created the "Go Blue Guarantee," which funds up to four years of tuition for in-state undergraduate students with a family income less than $65,000. (Students from families with incomes more than $65,000 also receive aid, if not always full tuition grants.)

In November 2013, the University officially launched the Victors for Michigan fundraising campaign with a goal of $4 billion. Through April, 2017, more than 340,000 donors have made gifts and pledges totaling $4.07 billion.

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

Go Blue Guarantee (goblueguarantee.umich.edu)

Cost Cutting & Budget Update (publicaffairs.vpcomm.umich.edu/key-issues/cost-cutting-budget-update/)

U-M Endowment Q&A (publicaffairs.vpcomm.umich.edu/key-issues/university-of-michigan-endowment/)

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

*Chart updated since the September 2017 edition.*

## Charts in Chapter 10

## Two-thirds of the U-M's annual General Fund budget directly supports academic activities.

### 10.1.1 Breakout of FY2018 General Fund Budget for the Ann Arbor campus.


**67.6 cents of each dollar for academic activities:** Instruction, Academic Advising, Libraries, Museums.

**9.9 cents for administrative services:** Admissions, Budgeting and Accounting, Central Human Resources, Central Information Technology, Legal Services.

**11.3 cents for facilities and risk management:** Plant Operations, Utilities, Insurance, Public Safety.

**11.3 cents for centrally awarded financial aid.**

SOURCE: Office of Budget and Planning

Note: total may not sum to 100 percent due to rounding.

### 10.1.2 Revenue and Expenditure Budget Summary for Ann Arbor Campus, FY2008-18.

| Revenue Budgets | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State Appropriation | 320,156 | 329,908 | 316,572 | 315,148 | 268,803 | 273,057 | 279,109 | 295,174 | 299,431 | 308,639 | 314,589 |
| Tuition and Fees | 840,566 | 894,487 | 948,461 | 1,015,952 | 1,090,340 | 1,156,647 | 1,217,808 | 1,277,842 | 1,308,819 | 1,395,166 | 1,490,041 |
| Indirect Cost Recovery | 164,710 | 171,569 | 180,191 | 212,467 | 218,291 | 211,616 | 219,303 | 213,874 | 215,799 | 226,543 | 239,050 |
| Other Revenue | 22,230 | 12,830 | 9,785 | 9,678 | 9,603 | 7,820 | 7,920 | 8,020 | 9,700 | 9,595 | 10,095 |
| Total Revenues | 1,347,661 | 1,408,794 | 1,455,010 | 1,553,245 | 1,587,037 | 1,649,140 | 1,724,140 | 1,794,910 | 1,833,749 | 1,939,943 | 2,053,775 |

| Expenditure Budgets by Unit | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Schools and Colleges | 779,497 | 812,445 | 821,383 | 890,861 | 910,684 | 959,038 | 994,968 | 1,018,185 | 1,037,508 | 1,092,817 | 1,166,701 |
| University Academic Units | 49,475 | 57,640 | 59,294 | 59,543 | 60,468 | 62,000 | 63,995 | 66,003 | 67,841 | 69,059 | 71,685 |
| Research Units | 4,305 | 4,116 | 3,158 | 4,314 | 4,969 | 4,943 | 4,779 | 3,326 | 3,719 | 4,114 | 2,913 |
| Academic Program Support | 49,233 | 58,328 | 70,592 | 81,860 | 62,991 | 63,548 | 69,073 | 79,912 | 78,215 | 98,783 | 97,319 |
| Capital Renewal Fund | - | - | - | 2,507 | 16,566 | 30,300 | 41,894 | 44,905 | 46.064 | 47,693 | 49,128 |
| Executive Officer and Service Units | 233,298 | 234,949 | 238,196 | 240,365 | 245,712 | 248,989 | 256,646 | 259,499 | 265,767 | 275,801 | 292,000 |
| North Campus Research Complex | - | - | 11,341 | 15,324 | 20,342 | 6,888 | 12,298 | 14,403 | 16,462 | 15,006 | 16,103 |
| Financial Aid | 99,058 | 106,594 | 117,790 | 126,056 | 134,255 | 144,768 | 161,170 | 183,444 | 195,627 | 212,295 | 231,436 |
| University Items | 132,795 | 134,723 | 133,254 | 132,416 | 131,050 | 128,665 | 119,318 | 125,232 | 122,545 | 124,376 | 126,490 |
| Total Expenditures | 1,347,661 | 1,408,794 | 1,455,010 | 1,553,245 | 1,587,037 | 1,649,140 | 1,724,140 | 1,794,910 | 1,833,749 | 1,939,943 | 2,053,775 |

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, FY2008-18.

| Revenue Budgets | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| General | 1,347,661 | 1,408,794 | 1,455,010 | 1,553,245 | 1,587,037 | 1,649,140 | 1,724,140 | 1,794,910 | 1,833,749 | 1,939,943 | 2,053,775 |
| Designated | 140,075 | 143,420 | 134,770 | 136,270 | 137,490 | 137,540 | 143,190 | 172,489 | 195,081 | 196,170 | 201,890 |
| Expendable Restricted | 879,590 | 898,481 | 969,709 | 1,053,733 | 1,110,109 | 1,094,334 | 1,097,197 | 1.054.926 | 1,157,947 | 1,204,451 | 4,891,134 |
| Auxiliary Activities | 2,415,498 | 2,617,270 | 2,646,668 | 2,838,824 | 2,932,963 | 3,198,411 | 3,406,856 | 3,593,864 | 3,867,754 | 4,132,188 | 1,269,565 |
| Total Revenues | 4,782,824 | 5,067,965 | 5,206,156 | 5,582,073 | 5,767,599 | 6,079,425 | 6,371,383 | 6,616,189 | 7,054,531 | 7,472,752 | 8,416,364 |

| Expenditure Budgets | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| General | 1,347,661 | 1,408,794 | 1,455,010 | 1,553,245 | 1,587,037 | 1,649,140 | 1,724,140 | 1,794,910 | 1,833,749 | 1,939,943 | 2,053,775 |
| Designated | 140,075 | 143,420 | 134,770 | 136,270 | 137,490 | 137,540 | 143,190 | 172,489 | 195,081 | 196,170 | 201,890 |
| Expendable Restricted | 879,590 | 898,481 | 969,709 | 1,053,733 | 1,110,109 | 1,094,334 | 1,097,197 | 1.054.926 | 1,147,647 | 1,189,451 | 4,845,345 |
| Auxiliary Activities | 2,359,287 | 2,581,993 | 2,641,130 | 2,773,513 | 3,015,247 | 3,239,005 | 3,495,268 | 3,638,271 | 3,937,359 | 4,062,275 | 1,254,565 |
| Total Expenditures | 4,726,614 | 5,032,687 | 5,200,618 | 5,516,761 | 5,849,883 | 6,120,019 | 6,459,795 | 6,660,596 | 7,113,836 | 7,387,839 | 8,355,576 |

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.)

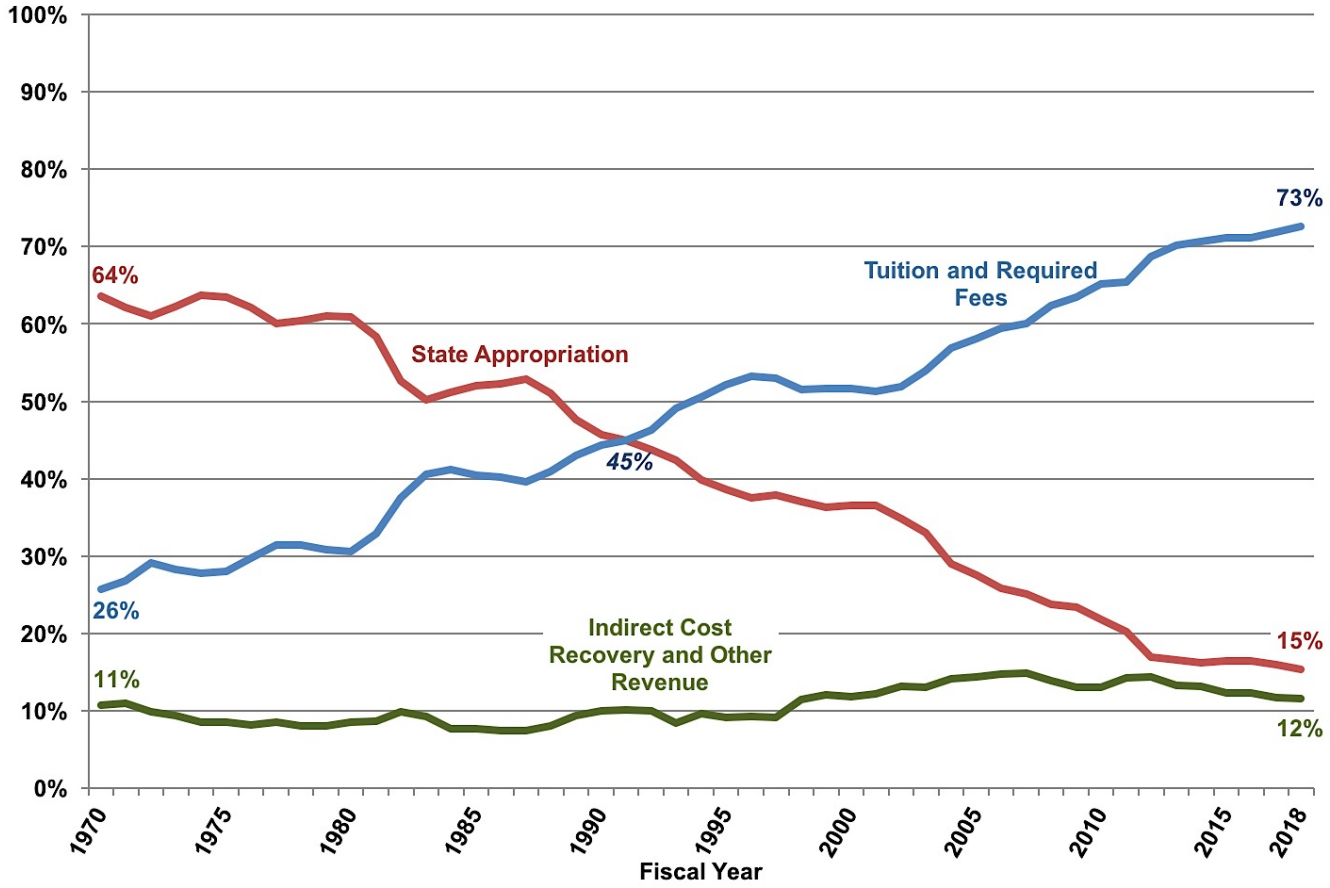
The Designated Fund is similar to the General Fund in that both support the academic mission of the university, although the Designated Fund revenue sources differ substantially from those for General Fund. The major sources of income in the Designated Fund are departmental revenue for continuing education (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 dramatically since 1970.

**10.2 Relative Contributions to the University's General Fund by State Appropriations, Tuition and Fees, and Other Revenues[1], FY1970-2018.**



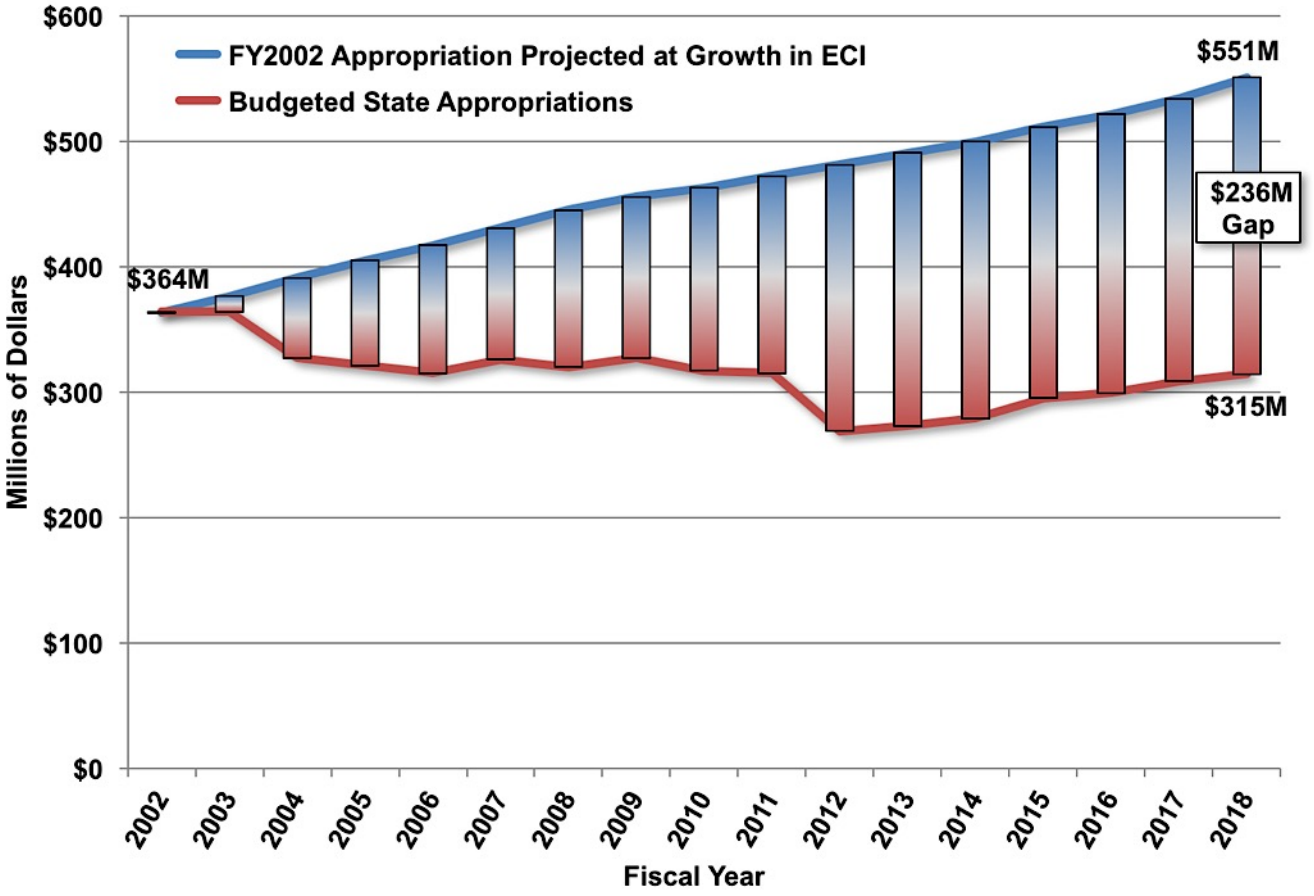

SOURCE: University of Michigan Financial Reports.

The state appropriation for FY2018 is $314.6 million, and provides 15 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 FY2018 are 73 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.

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

## The gap between the purchasing power for the FY2002 state appropriation and the actual state appropriation has grown to $236 million as of FY2018.

**10.3 FY2002 State Appropriation Adjusted for Inflation and Projected Forward to Maintain Constant Value, Compared to Actual Annual State Appropriations, FY2002-18.**




SOURCE: University of Michigan Financial Reports.

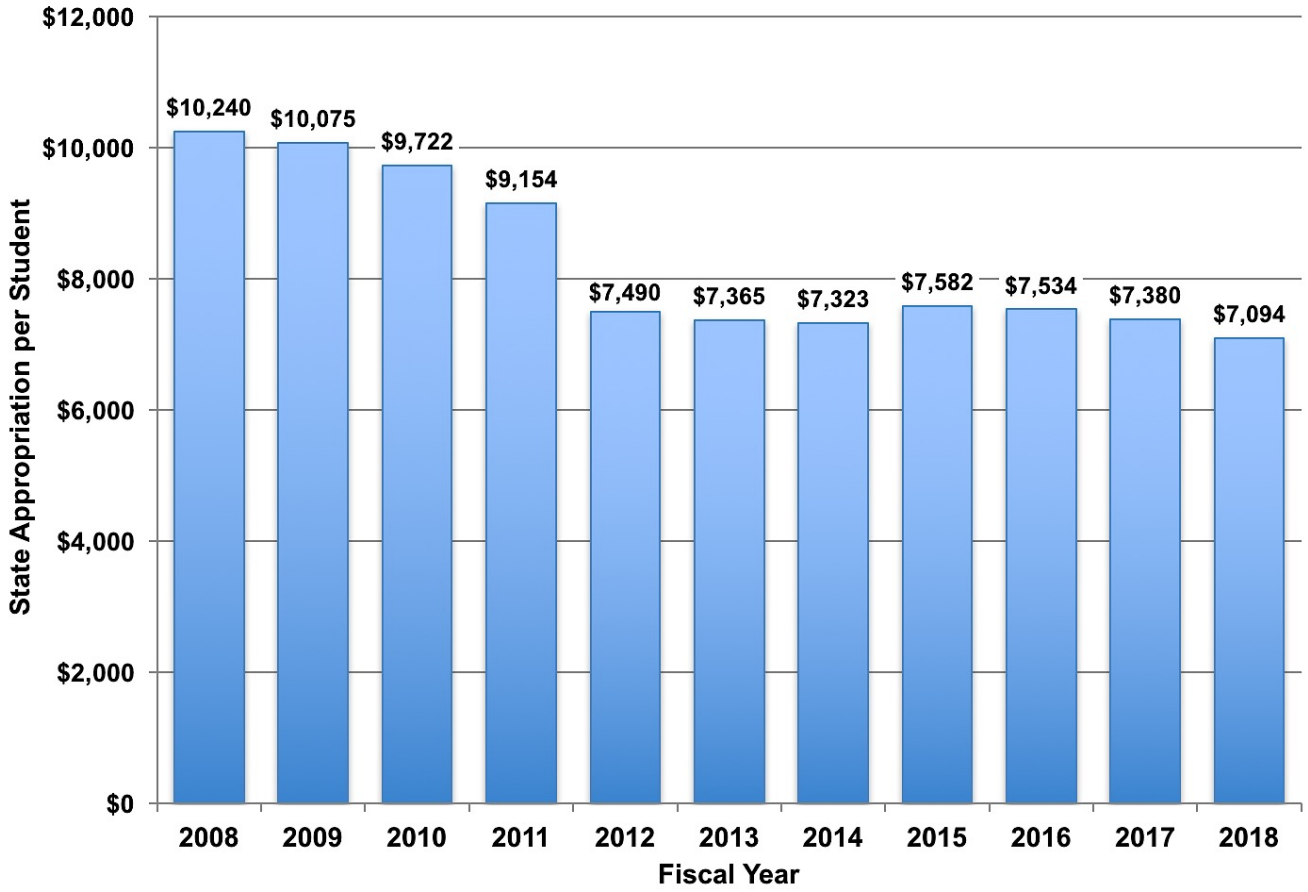
In actual dollars, the state appropriation for the Ann Arbor campus peaked at $363.56 million in FY2002. Factoring in inflation[2], the 2018 state appropriation for the Ann Arbor campus needed to be $551 million to equal the 2002 appropriation's purchasing power. The actual FY2017 state appropriation is $314.6 million.

For historical context, the FY2018 state appropriation of $314.6M is nearly equivalent to the actual FY1998 appropriation of $314.5M.

[2] Based on the estimated Employer Cost Index for 2018.

## State support per U-M enrolled student, when adjusted for inflation, is 31% lower than a decade ago.

**10.4.1 State of Michigan Appropriations to the U-M Ann Arbor Campus per Student, Adjusted for Inflation[3], FY2008-18.**



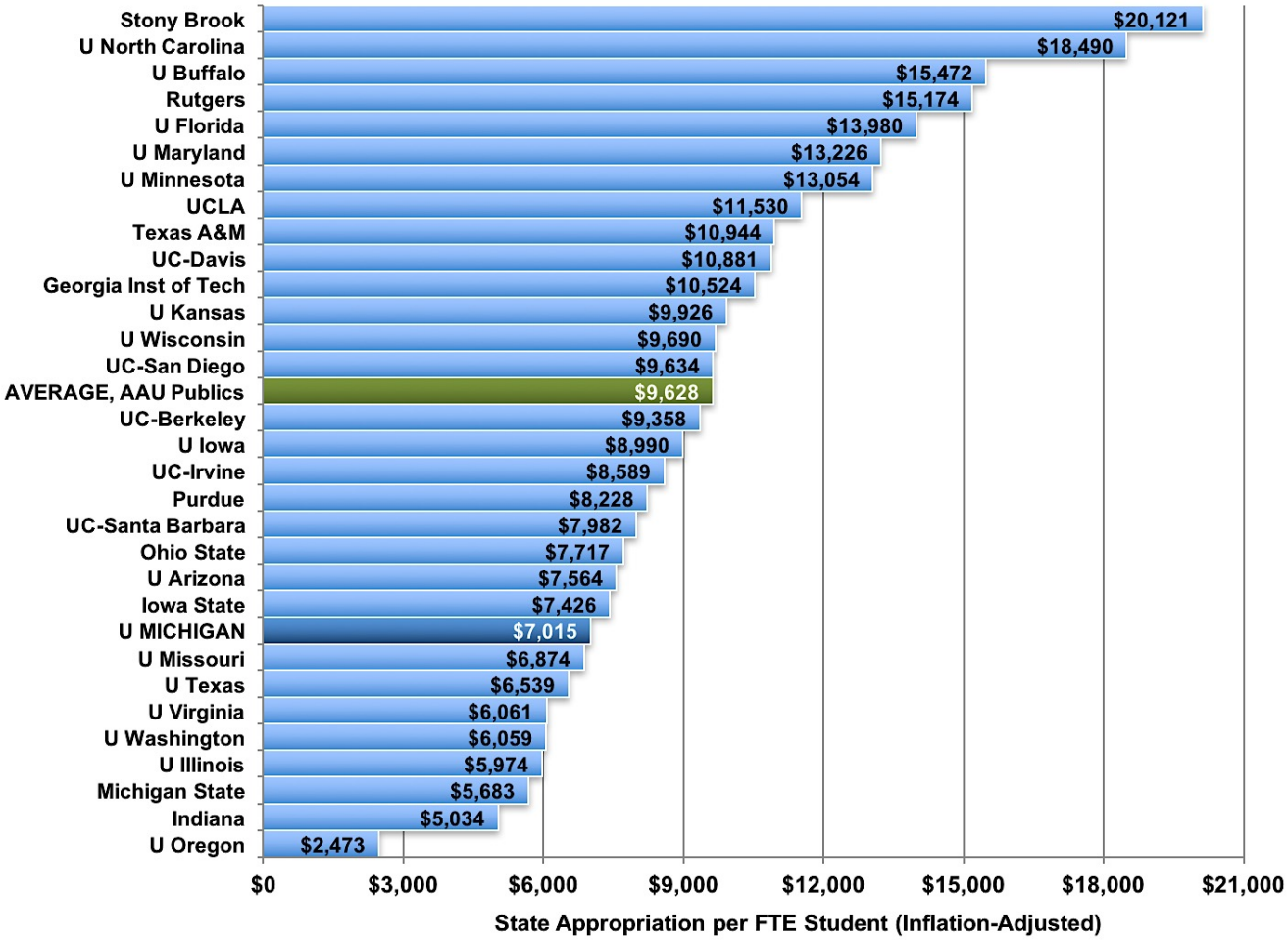

SOURCE: U-M Office of the Registrar, U-M Office of Budget and Planning.

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 offical fall semester third-week enrollment count.

[3] Based on the estimated Detroit Consumer Price Index for FY2018.

## Nearly three-quarters of AAU public universities receive more state support per student than the U-M.

### 10.4.2 State Appropriations per Full Time Equivalent Student to the U-M and AAU Public Institutions, based on Fall 2015 enrollment.

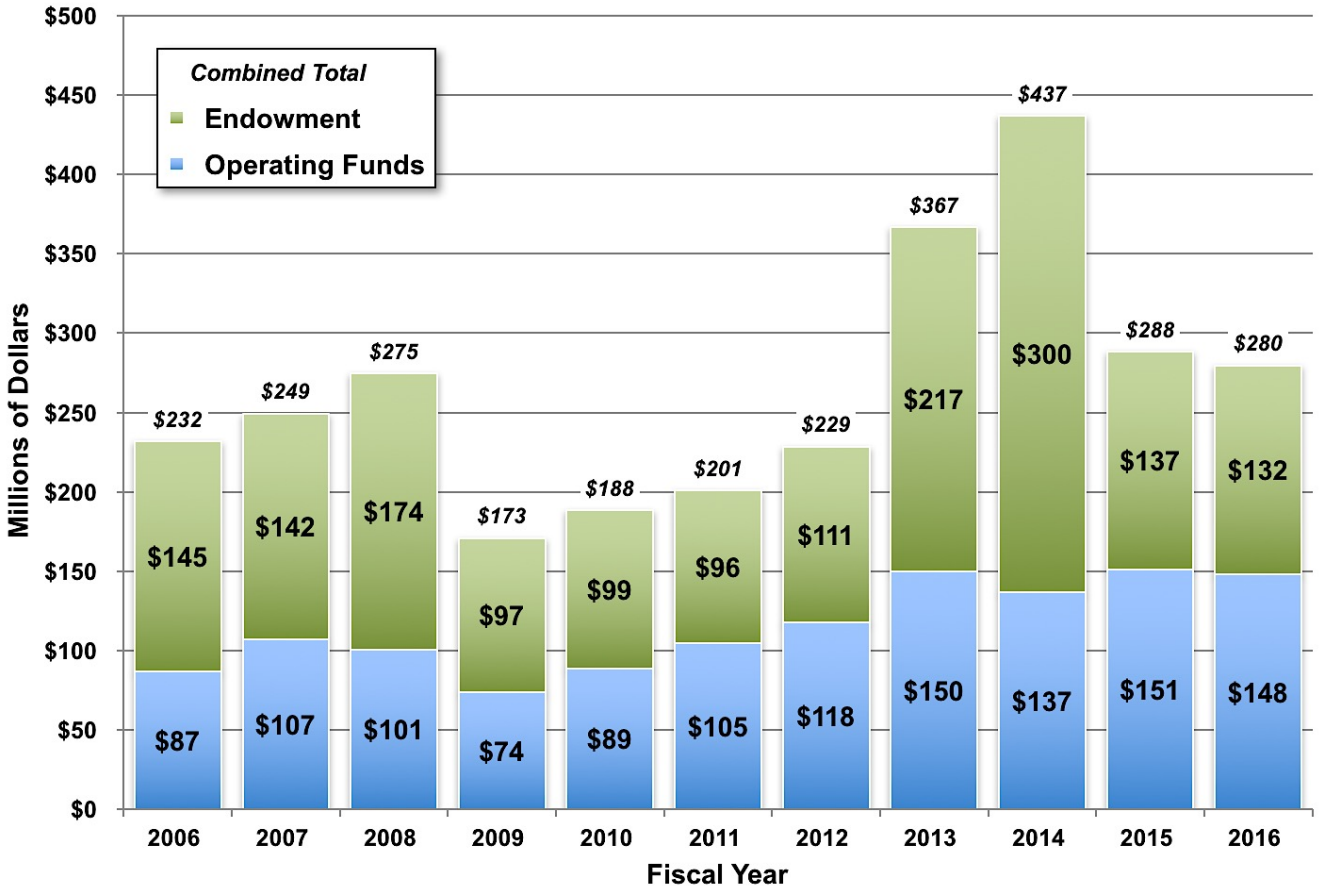



SOURCE: Integrated Postsecondary Education Data System (IPEDS), U.S. Department of Education.

The calculation of full time equivalent (FTE) students for each school uses IPEDS methodology of full-time headcount plus one-third of part-time headcount. Data on state appropriations for three AAU institutions – Pennsylvania State University, University of Colorado-Boulder and University of Pittsburgh – is not available for FY2015.

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

**10.5 Total Gifts to the University, by Gift Type, FY2006-16.**




SOURCE: U-M Office of Development

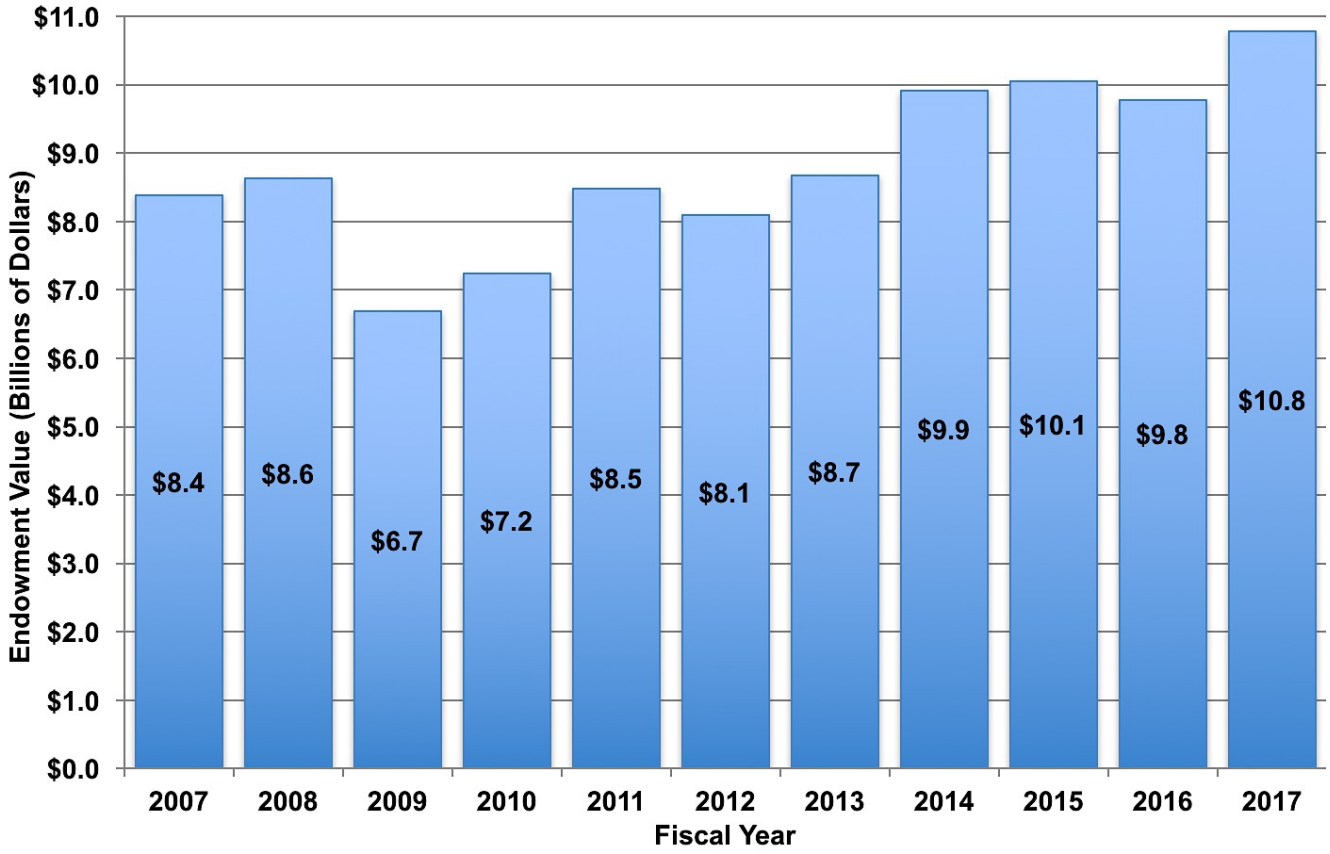
A new major fundraising campaign, Victors for Michigan, was officially launched on November 7, 2013[4]. The campaign goal is $4 billion, the largest goal in the history of public education. As of June 30, 2015, donors have made gifts and pledges totaling $2.9 billion.

The University's previous capital campaign – The Michigan Difference[7] – raised $3.1 billion in gifts and pledges from more than 364,000 donors between July 2000 and December 2008.

[4] "University launches Victors for Michigan campaign to raise $4 billion," *The University Record*, Nov. 7, 2013.
[5] "The Michigan Difference Campaign Celebration," *The University Record*, Nov. 24, 2008.

## The total value of the University of Michigan-Ann Arbor endowment has more than 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[6], 2007-17.**




SOURCE: U-M Office of Financial Operations.

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.

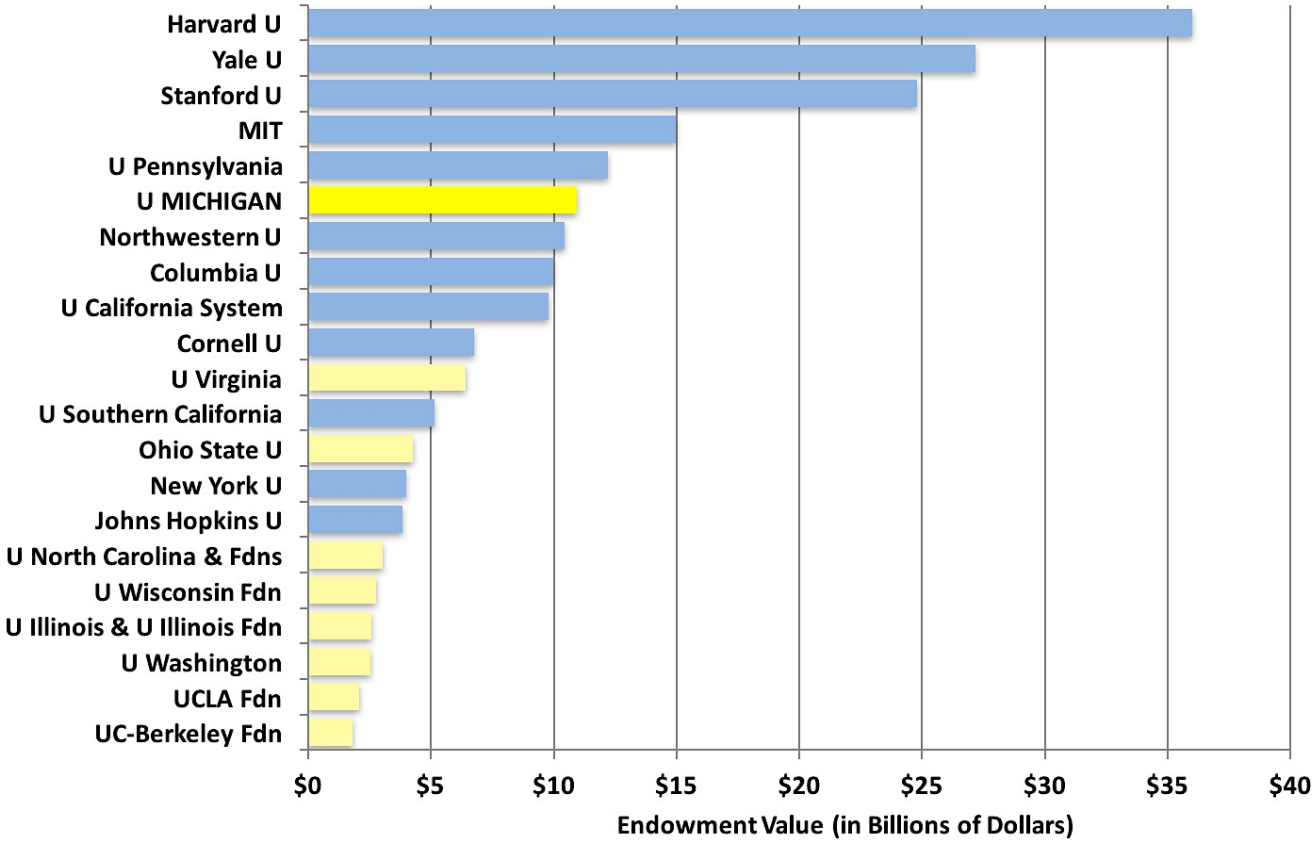
The decline in value for 2009 over 2008 corresponds to the sharp losses sustained by the stock and bond markets and recession that ensued, but the value has been reversed.

The value of the endowment funds shown in the chart is the value on June 30 of each year.

[6] Based on 2017 U.S. Consumer Price Index.

## The U-M has the largest endowment among its public university peers.

### 10.6.2 Market Value[7] of Endowment, U-M and Peers, 2017.




SOURCE: 2017 NACUBO-Commonfund Study of Endowments.

The U-M endowment market value increased by 12.2 percent, to $10.94B the end of FY2017 from $9.74B at the end of FY2016. The value of North American college and university endowment funds increased an average of 12.2 percent during the 2016-17 budget year[8], according to an annual survey of 818 institutions and higher education foundations by Commonfund and the National Association of College and University Business Officers (NACUBO).

Data for public universities are shaded in yellow; private university data are shaded in blue.

[7] 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 2016 to FY 2017 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. 2017 NACUBO-Commonfund Study of Endowments.

[8] "Endowments Rebound, but Is It Enough" Inside Higher Ed., January 25, 2018.

# Chapter 11 Space & Sustainability

## Goals

Campus space must support the academic and research missions of the University. To accomplish this requires comprehensive usage policies, monitoring and capital planning to ensure that space is managed strategically, thoughtfully, and with institutional needs in mind.

The U-M has also established sustainability goals, such as for greenhouse gas emissions, carbon output of university vehicles, and production of waste.

## Overview

The physical plant of the University of Michigan Ann Arbor campus is extensive. The campus includes some 600 buildings with more than 2,000 classrooms and instructional laboratories. The U-M is responsible for nearly 30 miles of roads and 5 million square feet of sidewalks, steps and plazas. More than 16,000 trees and countless gardens populate the campus, as well as 13 million square feet of turf. About 200 miles of fiber optic cable weaves through the campus, supporting 6 enterprise-level data centers, some 2,300 servers, and thousands of individual computers.

Space utilization guidelines have been established for classrooms, food service, research activities, and offices. In particular, effective course and classroom scheduling is critical to the academic mission of the University. It enables students to take the courses they need to make progress toward graduation, and contributes to on-going cost containment efforts through efficient use of space.

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 under the campus-wide sustainability brand, known as Planet Blue. Recently, the University became a signatory to the American Campuses Act on Climate Pledge, joining more than 200 universities and colleges committing to take "significant action to reduce greenhouse gas emissions, increase campus sustainability and incorporate environmental sustainability in academic curricula." [1]. In summer 2016, the U-M was one of eight institutions to receive the Sustainability Award in Facilities Management[2] by a national organization of physical plant administrators.

## For More Information

Space Planning and Utilization (provost.umich.edu/space/)

Planet Blue (sustainability.umich.edu/)
U-M sustainability education, research, and campus operations

*Chart updated since the September 2017 edition.*

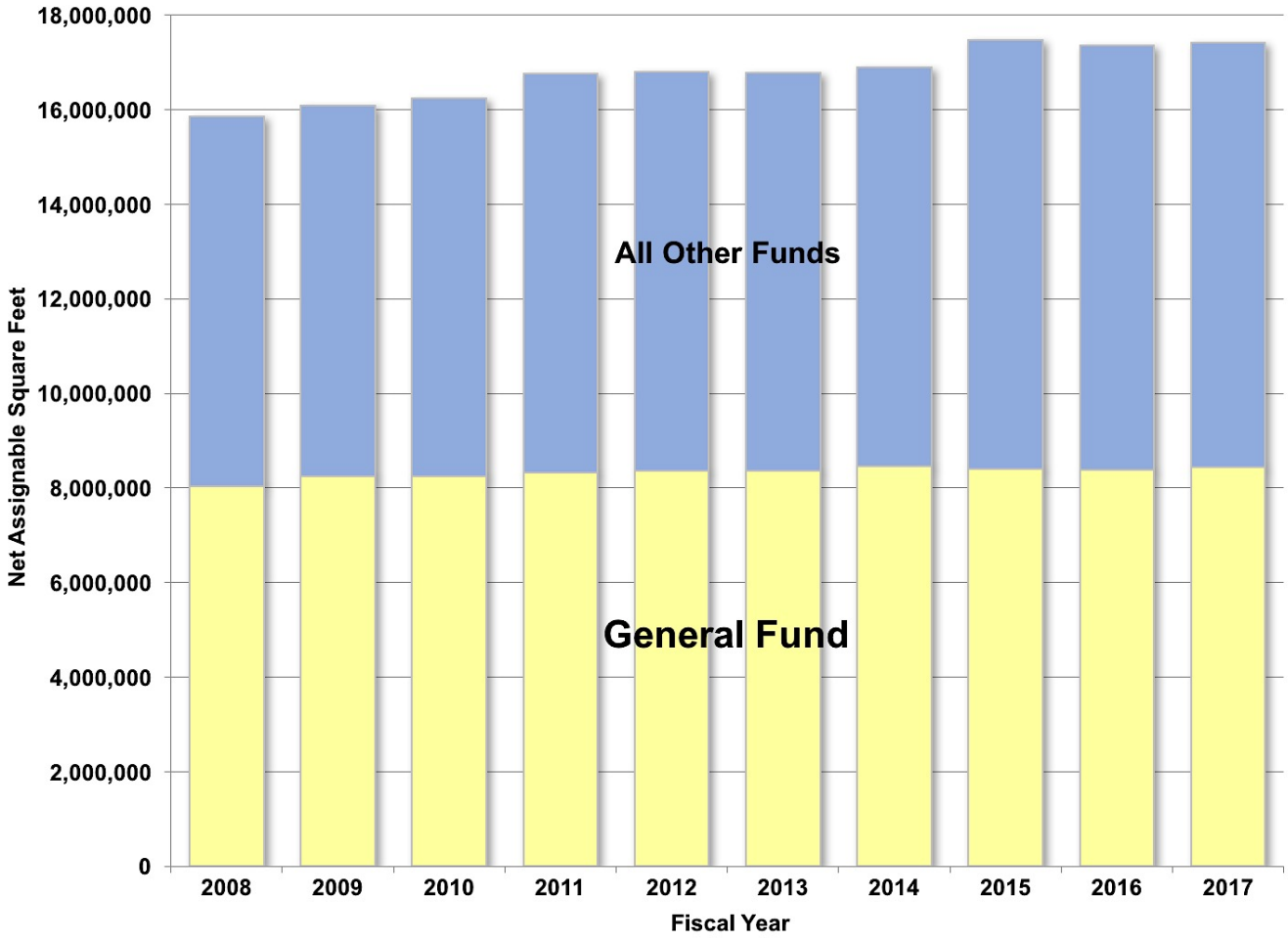
## Charts in Chapter 11



[1] "University takes the American Campuses Act on Climate Pledge," *University Record*, Nov. 20, 2015.
[2] "U-M wins national award for campus sustainability excellence," *University Record*, July 25, 2016.

## Ann Arbor campus space[1] is about equally divided in being supported by the General Fund and by other funds. Compared to 2006, the General Fund now supports an additional 392,000 net assignable square feet, a 4.9% increase.

**11.1 Total Facilities Space on the Ann Arbor Campus[3], by General Fund and All Other Funds, FY 2008-17.**



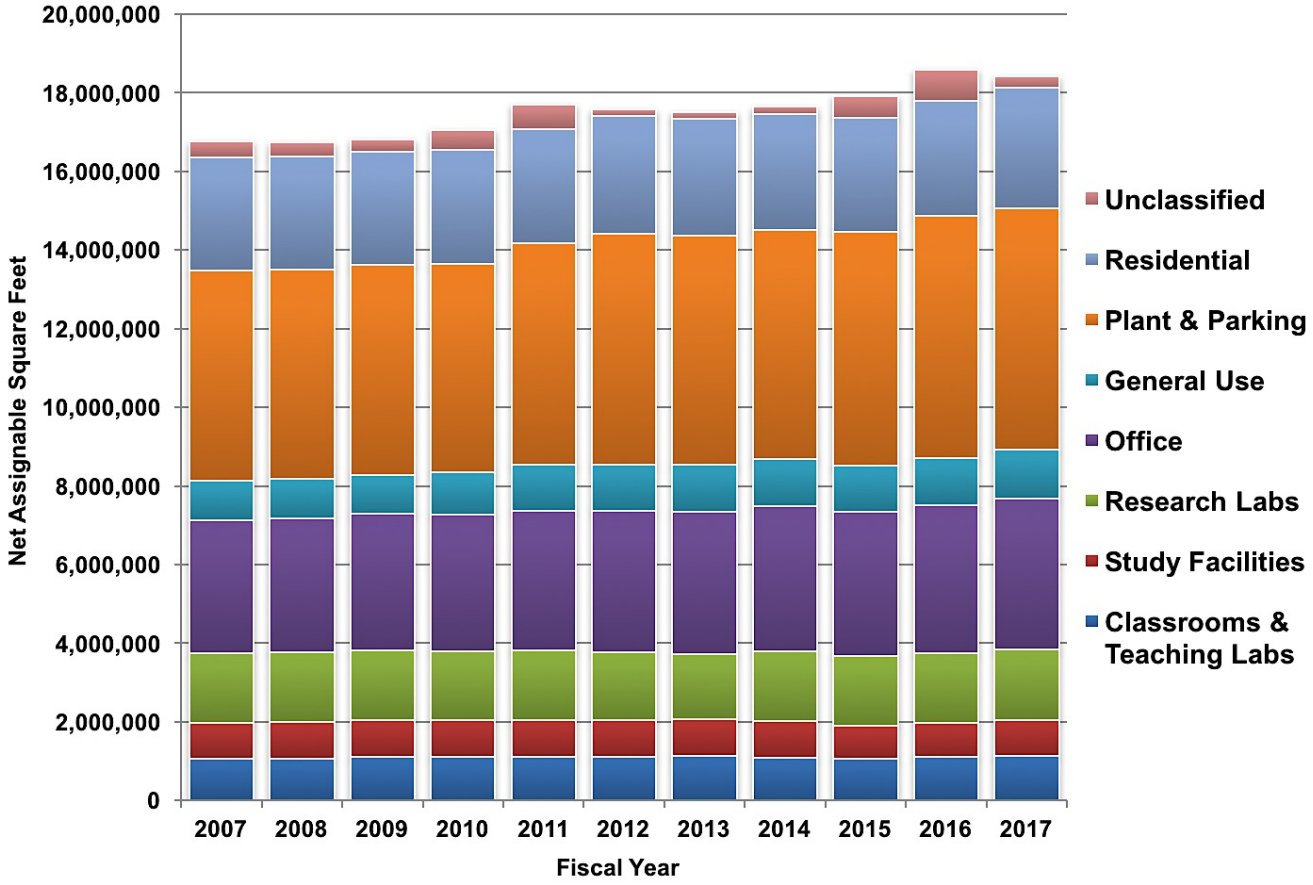

SOURCE: U-M Annual Space Management Survey Reports

Ann Arbor campus space[3] 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 the hospitals and health system, residence halls, parking structures and varsity athletic facilities. Both categories exclude common areas, such as hallways, staircases and lobbies.

[3] In this chart, Ann Arbor campus excludes the non-Medical-School portion of the Health System and North Campus Research Complex.

## Ann Arbor campus space[4] has increased by just under 1.7 million net assignable square feet (~4%) over the last decade.

### 11.2.1 Ann Arbor Campus Space[4], by Room Type, FY2007-17.




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.

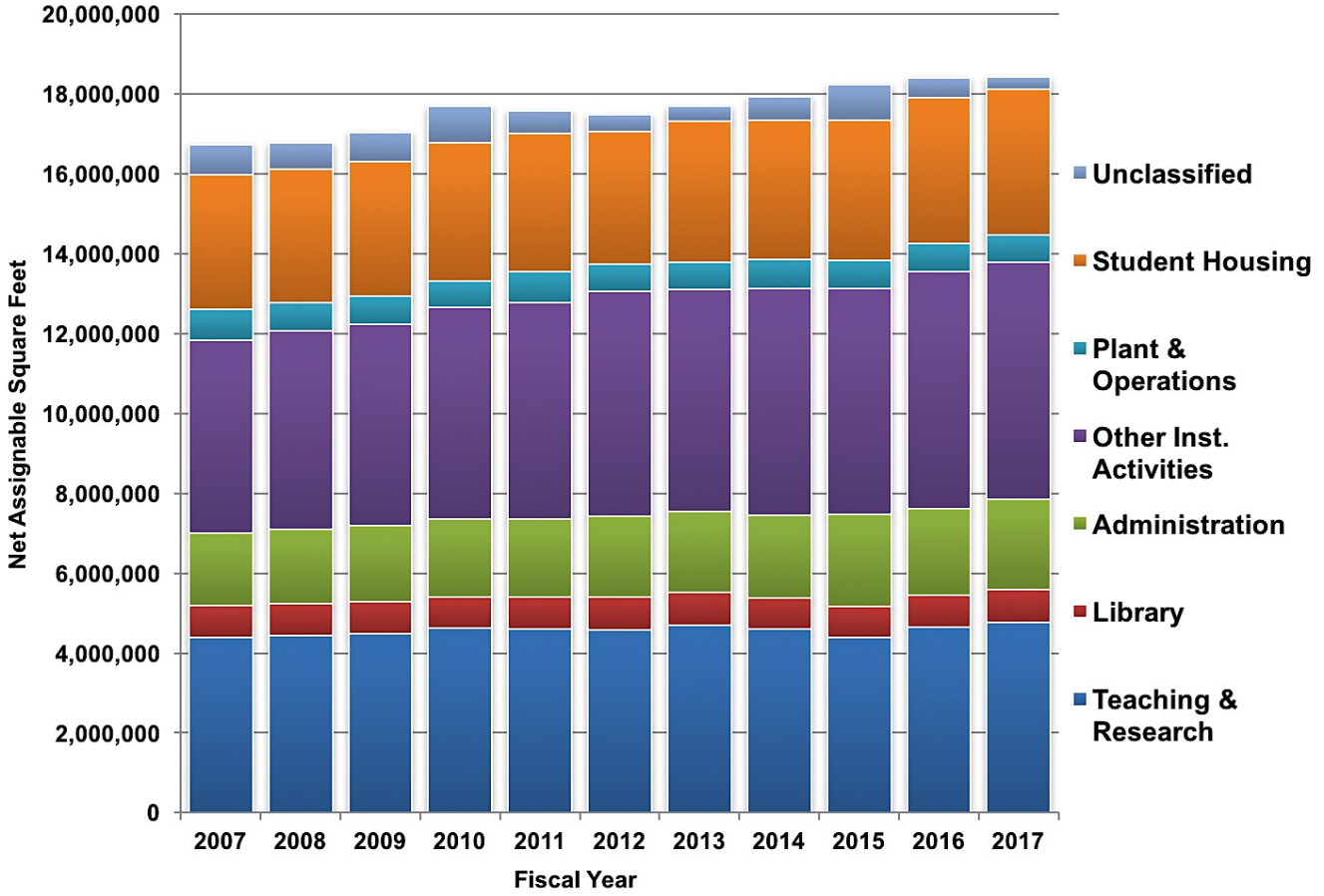
Space that is either not in use or being remodeled is in the unclassified category; campus facilities and buildings move into and out of this category from year-to-year. General use space covers rooms used for performances, exhibitions, food service, recreation, lounges, and meeting rooms. Plant & Parking 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.

[4] For the purposes of this chart, Ann Arbor campus excludes the Health System and North Campus Research Complex.

## All types of space are needed to support the University's mission.

### 11.2.2 Ann Arbor Campus Space[5], by Function, FY2007-17.




SOURCE: U-M Office of Space Analysis.

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

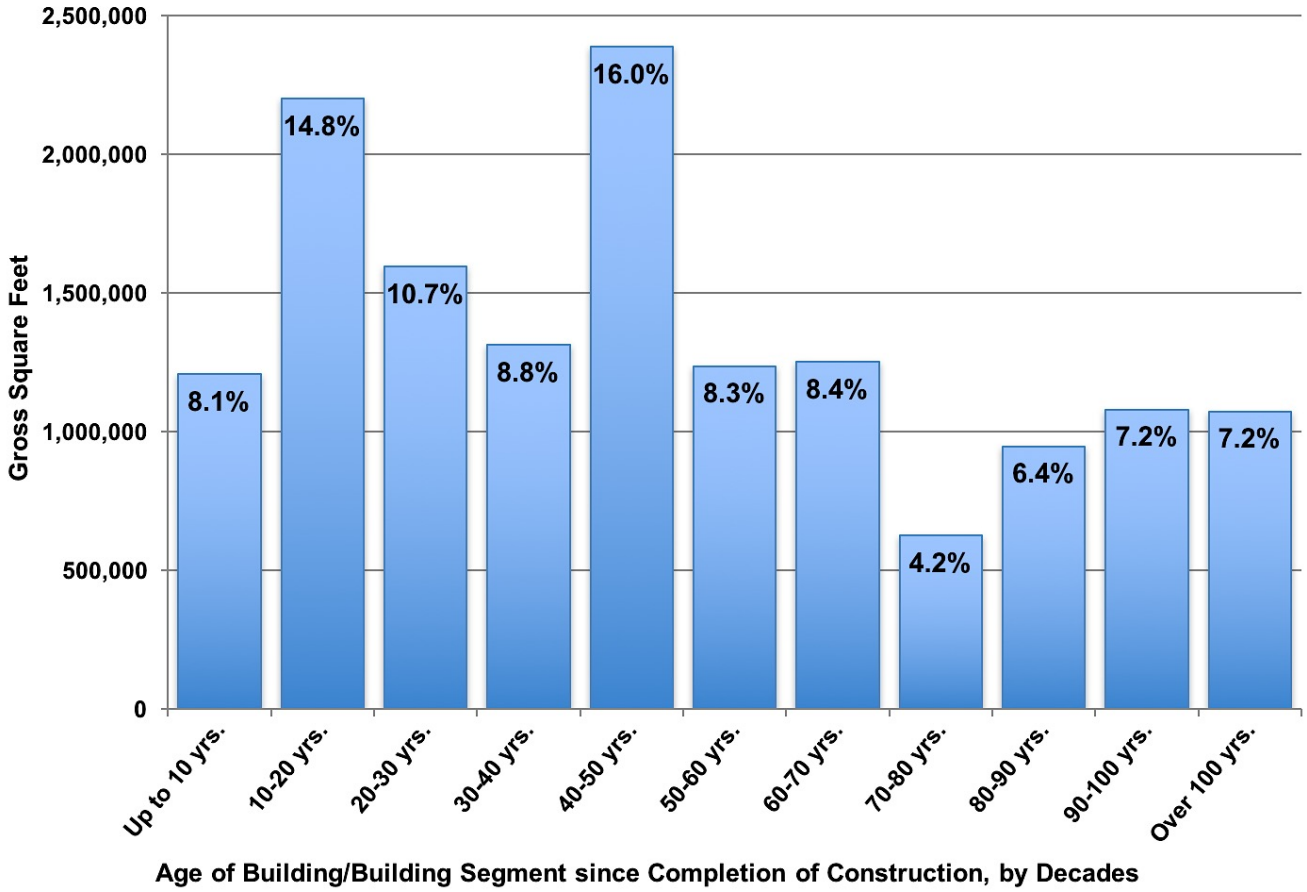
Space in the unclassified category is either not in use or being remodeled. Plant and Operations includes space used in the operation and maintenance of the University's physical plant, its heating/cooling and other utilities services, central information technology services, and some special service 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.

[5] For the purposes of this chart, Ann Arbor campus excludes the Health System and North Campus Research Complex.

## About 58 percent of the General Fund building space on the Ann Arbor campus[4] was first put into service within the last 50 years.

**11.3 Age of Ann Arbor Campus[6] General Fund Space, by 10-year Increments through FY2017.**




SOURCE: U-M Data Warehouse.

The General Fund building space for the Ann Arbor campus[6] and nearby areas totals 14.5 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.

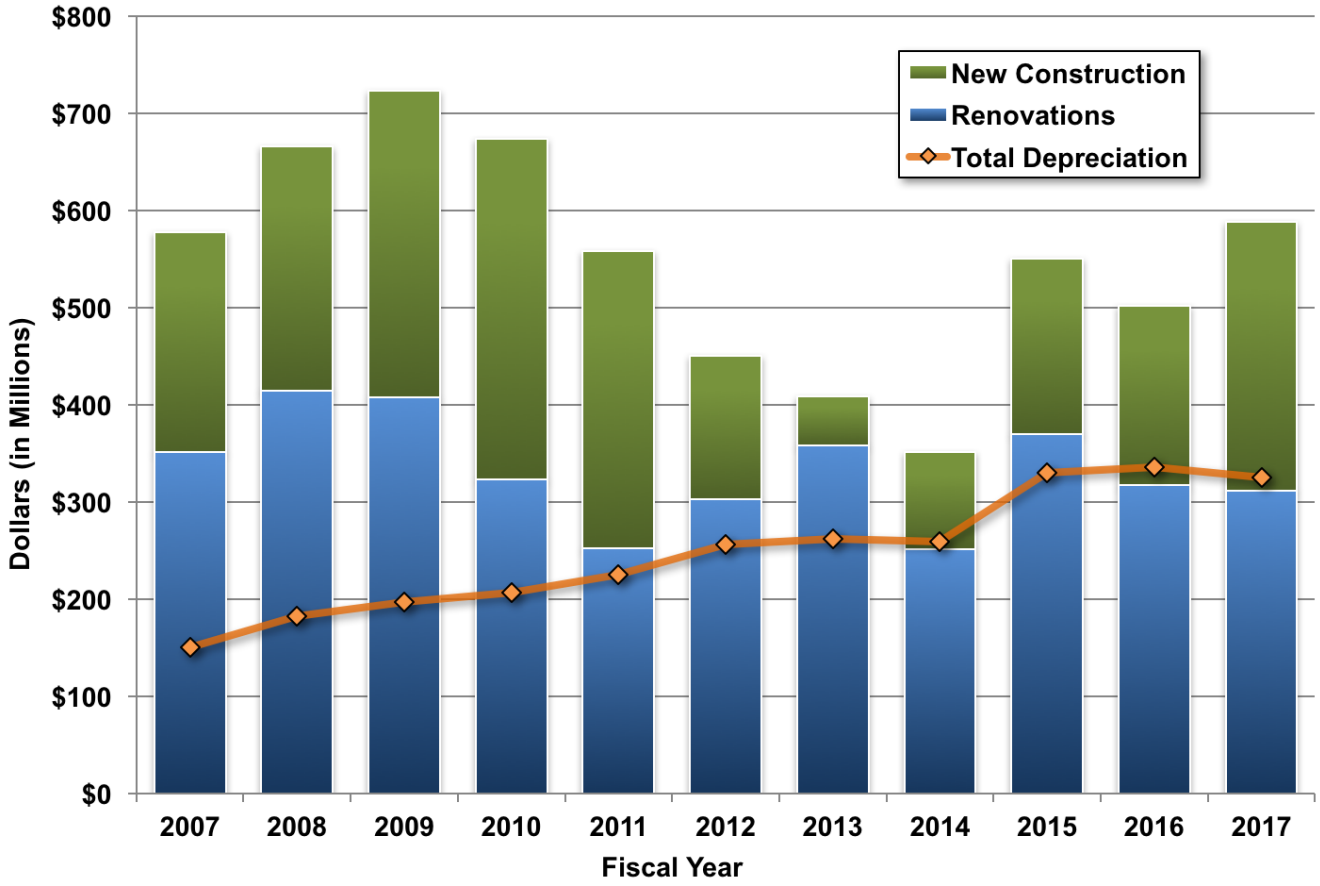
The last 20 years saw a large increase in new construction on campus. During this period, the U-M built the Biomedical Sciences Research Building, Undergraduate Science Building, Palmer Commons, Computer Science Building, and the Ross School of Business building.

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.

[6] For the purposes of this chart, Ann Arbor campus excludes the Health System and North Campus Research Complex.

## The University tries to maintain a balance between adding new space and renovating existing space on campus.

**11.4 U-M General Fund Renovation and New Construction Expenditures, Adjusted for Inflation[7], and Depreciation of the U-M Physical Plant, FY2007-17.**



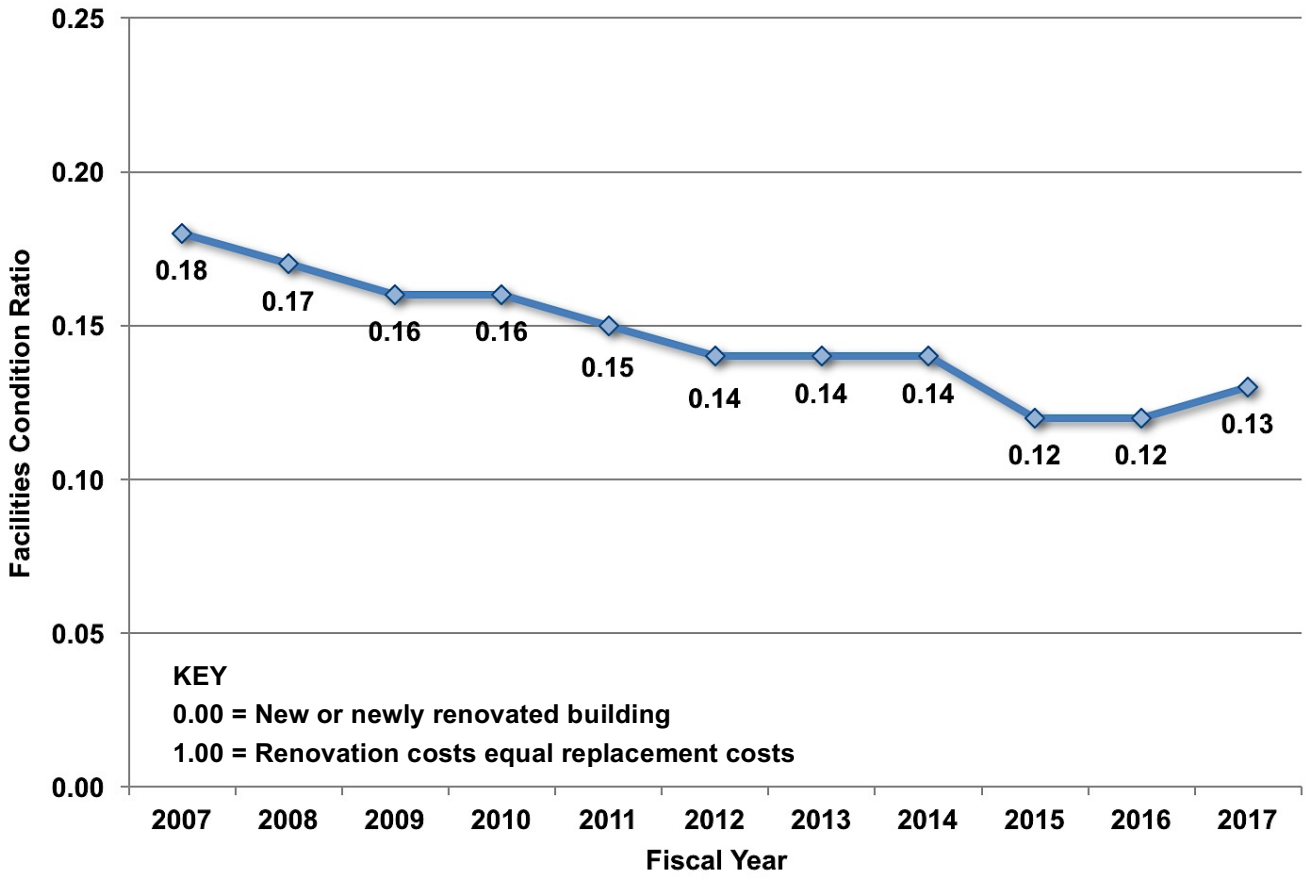

SOURCE: U-M Office of Financial Analysis.

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.

[7] Based on 2017 Building Cost Index, *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.

**11.5 Ratio of General Fund Infrastructure Renovation Costs to Total Replacement Costs, FY2007-17.**

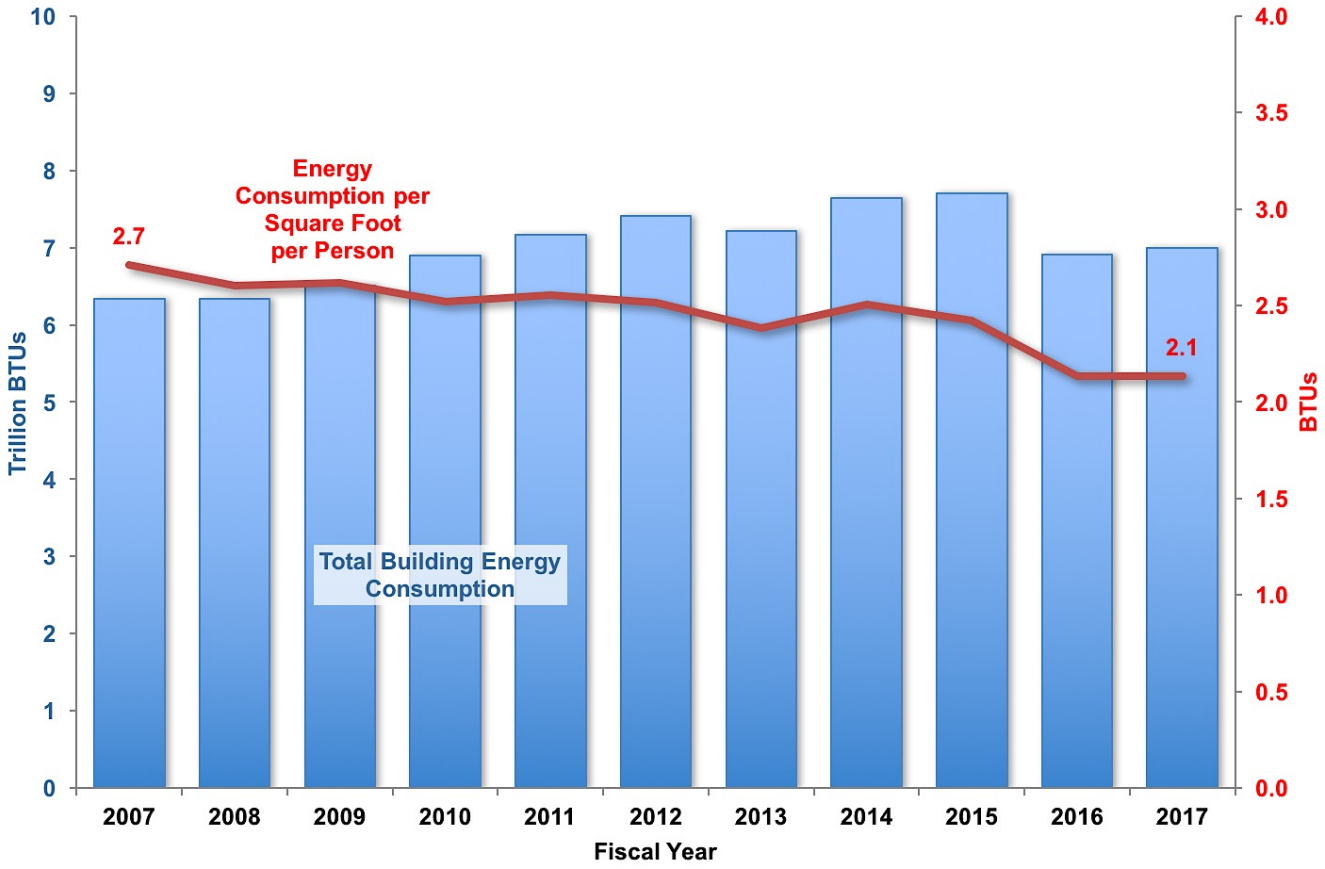



SOURCE: U-M Office of Financial Analysis.

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.

**The growth in total energy use by buildings on campus is larger today compared to a decade ago. At the same time, energy use per square foot per person has declined over the last several years.**

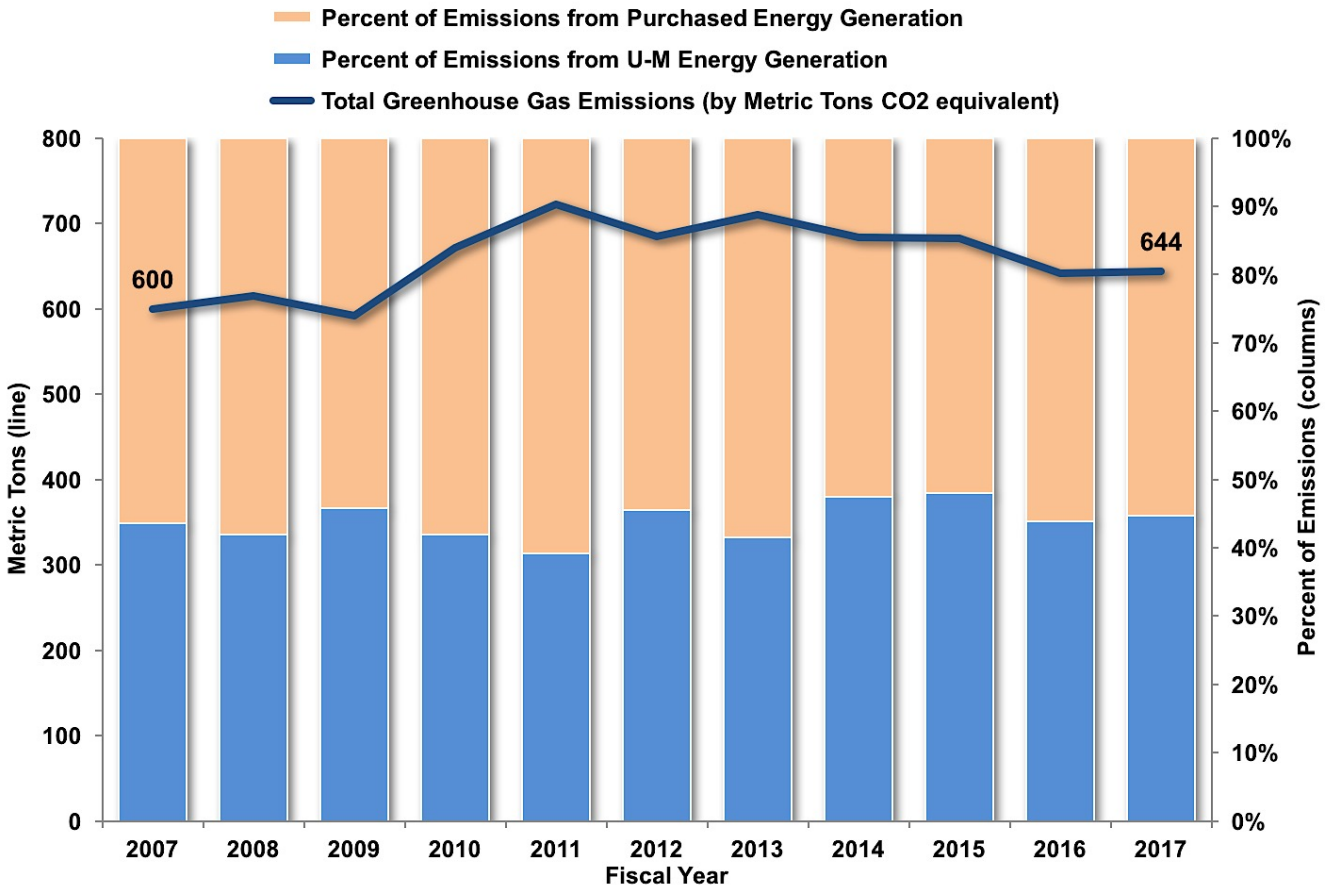
### 11.6.1 Building Energy Use, Total and Per Square Foot Per Person, FY2007-17.




SOURCE: U-M Utilities and Plant Engineering.

## Total greenhouse gas emissions from campus buildings and vehicles have declined in the past several years.

### 11.6.2 Greenhouse Gas Emissions, Total and Percent of Emissions by Energy Generation Source, FY2007-17.

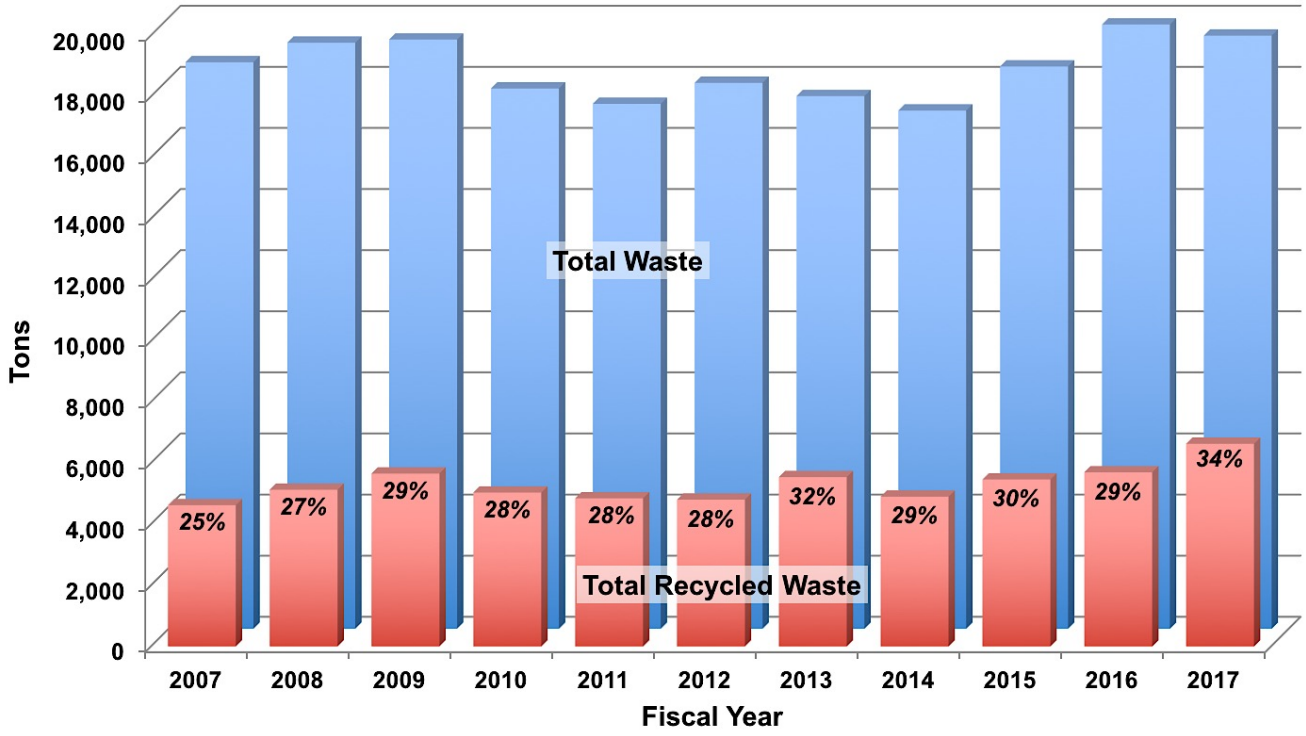



SOURCE: U-M Utilities and Plant Engineering.

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.

## The total weight and percentage of waste being recycled is highest in the most recent fiscal year.

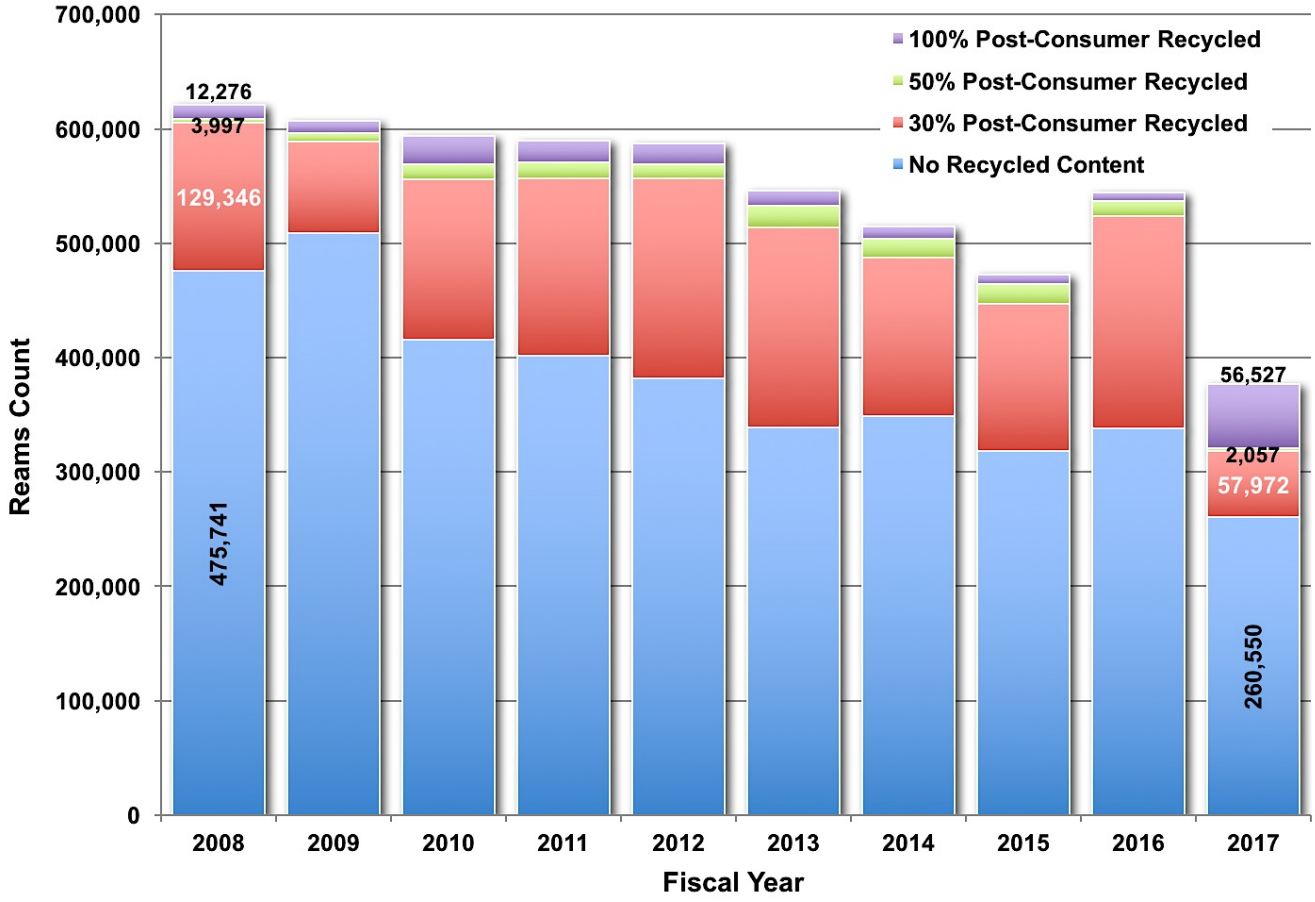
### 11.6.3 Waste, Total and Percent Recycled, FY2007-17.




SOURCE: U-M Waste Management.

## 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.

### 11.6.4 Paper Purchased by Percent Recycled Content, FY2008-17.




SOURCE: U-M Office of Campus Sustainability.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USEUM OF ART
African Art on View

# Chapter 12 Academic & Reputational Lists

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 (*USN&WR* included) now blend survey results and quantitative data. The sponsor of each ranking sorts and organizes the data and opinions by whatever method it chooses and creates an ordered list of institutions.

This chapter provides results from several well-known rankings, some of which have been published for many years. But remember, rankings are not trustworthy indicators of whether a particular school is right for any given student.

There is no such thing as a "No. 1" school, no matter what a student chooses to study. What matters most in choosing a school is finding a match between a student's particular interests, abilities, and ambitions with the specific programs, approaches and opportunities offered by a particular school. The underlying information often included with the publication of an ordered list probably has more value than the list itself because it permits the reader to examine specific characteristics of each institution.

✦ ***Chart updated since the September 2017 edition.***

### Charts in Chapter 12

## The U-M is one of the nation's leading public universities, according to the methodology used by *U.S. News & World Report* to produce its ordered list.

### 12.1.1 *U.S. News & World Report* Rankings of National Undergraduate Universities, U-M and Peers[1], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 | |
|---|---|---|---|---|---|---|
| | | | | | All | Public |
| Harvard University | 2 | 2 | 2 | 2 | 2 | -- |
| Yale University | 3 | 3 | 3 | 3 | 3 | -- |
| University of Chicago | 5 | 4 | 4 | 3 | 3 | -- |
| Columbia University | 4 | 4 | 4 | 5 | 5 | -- |
| Stanford University | 5 | 4 | 4 | 5 | 5 | -- |
| Massachusetts Institute of Technology | 7 | 7 | 7 | 7 | 5 | -- |
| University of Pennsylvania | 7 | 8 | 9 | 8 | 8 | -- |
| Johns Hopkins University | 12 | 12 | 10 | 10 | 11 | -- |
| Northwestern University | 12 | 13 | 12 | 12 | 11 | -- |
| Cornell University | 16 | 15 | 15 | 15 | 14 | -- |
| University of California-Berkeley | 20 | 20 | 20 | 20 | 21 | 1 |
| University of Southern California | 23 | 25 | 23 | 23 | 21 | -- |
| University of California-Los Angeles | 23 | 23 | 23 | 24 | 21 | 1 |
| University of Virginia | 23 | 23 | 26 | 24 | 25 | 3 |
| MICHIGAN | 28 | 29 | 29 | 27 | 28 | 4 |
| University of North Carolina | 30 | 30 | 30 | 30 | 30 | 5 |
| New York University | 32 | 32 | 32 | 36 | 30 | -- |
| University of Wisconsin | 41 | 47 | 41 | 44 | 46 | 12 |
| University of Illinois | 41 | 42 | 41 | 44 | 52 | 14 |
| Ohio State University | 52 | 54 | 52 | 54 | 54 | 16 |
| University of Washington | 52 | 48 | 52 | 54 | 56 | 18 |
| University of Texas | 52 | 53 | 52 | 56 | 56 | 18 |
| University of Maryland | 62 | 62 | 57 | 60 | 61 | 22 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: *U.S. News & World Report*, America's Best Colleges (2014-2018 Editions).

The *U.S. News & World Report* (*USN&WR*) system for creating an ordered list of 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 appears 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 peers used for comparison on this page is published in Appendix A.

## Of 123 U-M graduate programs scored by *U.S. News & World Report*, 97 are listed in the top ten. Only UC-Berkeley and Stanford have more top-ten listed graduate programs.

### 12.1.2 *U.S. News & World Report* Rankings of U-M Top Ten Graduate Programs, 2017.

**GRADUATE PROFESSIONAL PROGRAMS**

| Business | |
|---|---|
| Accounting | 5 |
| Entrepreneurship | 6 |
| Executive M.B.A. | 6 |
| Finance | 9 |
| International | 7 |
| Management | 5 |
| Marketing | 5 |
| Nonprofit | 7 |
| Part-time M.B.A. | 6 |
| Production/Operations | 3 |
| Supply Chain/Logistics | 4 |

| Medicine | |
|---|---|
| Primary Care | 5 |
| Research | 9 |
| Family Medicine | 4 |
| Geriatrics | 8 |
| Internal Medicine | 6 |
| Women's Health | 6 |
| **Public Health** | **4** |
| Healthcare Management | 1 |
| **Social Work** | **1** |
| **Pharmacy** | **3** |

| Law | 8 |
|---|---|
| Clinical Training | 9 |
| International Law | 6 |
| **Nursing** | |
| Nursing Administration | 5 |
| Nursing Informatics | 10 |
| Nursing-Midwifery | 1 |
| Nurse Practice – Adult/ Gerontology, Primary Care | 10 |

**GRADUATE PROGRAMS in Science, Engineering, Information, Education, Public Policy**

| Engineering | 5 |
|---|---|
| Aerospace Engineering | 5 |
| Biomedical Engineering | 10 |
| Civil Engineering | 9 |
| Computer Engineering | 6 |
| Electrical Engineering | 7 |
| Environmental Engineering | 4 |
| Industrial Engineering | 2 |
| Materials Engineering | 9 |
| Mechanical Engineering | 6 |
| Nuclear Engineering | 1 |
| **Library & Info. Studies** | **5** |
| Archives & Preservation | 1 |
| Digital Librarianship | 8 |
| Health Librarianship | 4 |
| Information Systems | 1 |

| Science | |
|---|---|
| Analytical Chemistry | 7 |
| Organic Chemistry | 9 |
| Earth Sciences | 8 |
| Geochemistry | 5 |
| Geology | 2 |
| Paleontology | 3 |
| Mathematics | 9 |
| Algebra/Number Theory | 8 |
| Analysis | 10 |
| Applied Mathematics | 10 |
| Discr. Math/Combinations | 5 |
| Atomic Physics | 10 |
| Computer Science-Systems | 10 |

| Education | |
|---|---|
| Curriculum & Instruction | 6 |
| Education Policy | 5 |
| Educational Psychology | 2 |
| Elem. Teacher Education | 2 |
| Higher Education Admin. | 1 |
| Secondary Teacher Education | 2 |
| **Public Policy** | **8** |
| Environ. Policy & Mgmt. | 5 |
| Health Policy & Management | 5 |
| Information & Tech. Mgmt. | 9 |
| Public Policy Analysis | 3 |
| Social Policy | 1 |

SOURCE: *U.S. News & World Report*, America's Best Grad Schools (2018 Edition).

*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; in 2017, *USN&WR* updated public affairs and social science, humanities, and library and information studies. All other programs listed on this and the following page were ranked prior to 2017 and republished here and on the next page.

### 12.1.2 *U.S. News & World Report* Rankings of U-M Top-Ten Graduate Programs, 2017 (continued).

| GRADUATE PROGRAMS in the Social Sciences and Humanities | |
|---|---|
| **Economics** | |
| International Economics | 8 |
| Labor Economics | 6 |
| Public Finance | 4 |
| **Political Science** | **4** |
| American Politics | 5 |
| Comparative Politics | 6 |
| International Politics | 5 |
| Political Methodology | 5 |
| Political Theory | 7 |

| | |
|---|---|
| **Sociology** | **1** |
| Economic Sociology | 6 |
| Historical Sociology | 3 |
| Sex & Gender | 7 |
| Social Stratification | 4 |
| Sociology of Population | 4 |
| **English** | **8** |
| Medieval/Renaissance Lit. | 10 |

| | |
|---|---|
| **History** | **6** |
| Asian History | 5 |
| European History | 6 |
| Latin American History | 5 |
| Modern U.S. History | 5 |
| **Psychology** | **3** |
| Behavioral Neuroscience | 1 |
| Cognitive Psychology | 8 |
| Developmental Psychology | 2 |
| Experimental Psychology | 1 |
| Social Psychology | 2 |

SOURCE: U.S. News & World Report, America's Best Grad Schools (2017 Edition).

## The University is a top-20 institution globally according to a relatively new ordered list of global universities published by *U.S. News & World Report*. The U-M's position on this global list is consistently higher than on the USN&WR list limited to U.S. universities.

### 12.1.3 *U.S. News & World Report* Rankings of Best Global Universities, U-M and Peers[1], 2014-17.

| University | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| Harvard University | 1 | 1 | 1 | 1 |
| Massachusetts Institute of Technology | 2 | 2 | 2 | 2 |
| Stanford University | 4 | 4 | 3 | 3 |
| University of California-Berkeley | 3 | 3 | 4 | 4 |
| Columbia University | 10 | 9 | 9 | 8 |
| University of Washington | 14 | 11 | 11 | 10 |
| Johns Hopkins University | 11 | 12 | 11 | 10 |
| Yale University | 17 | 14 | 14 | 10 |
| University of California-Los Angeles | 8 | 8 | 10 | 13 |
| University of Chicago | 9 | 10 | 13 | 14 |
| University of Michigan | 14 | 17 | 17 | 17 |
| University of Pennsylvania | 19 | 14 | 17 | 19 |
| Cornell University | 23 | 21 | 22 | 23 |
| Northwestern University | 25 | 25 | 25 | 24 |
| New York University | 36 | 34 | 27 | 28 |
| University of Wisconsin | 27 | 26 | 29 | 31 |
| University of Texas | 30 | 30 | 30 | 32 |
| University of North Carolina | 32 | 27 | 32 | 34 |
| Ohio State University | 34 | 34 | 43 | 46 |
| University of Maryland | 51 | 41 | 40 | 50 |
| University of Illinois | 35 | 43 | 47 | 51 |
| University of Southern California | 50 | 44 | 53 | 62 |
| University of Virginia | 102 | 94 | 99 | 107 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: *U.S. News & World Report*, 2015-2018 Editions.

*U.S. News & World Report* recently added a global university comparison to its stable of rankings. The new list concentrates "specifically on schools' academic research and reputation overall and not on their separate undergraduate or graduate programs," according to the publisher.

For the global ranking, U.S. News starts with data from the Thomson Reuters InCites™ database, such as reputation survey results, which represent 25% of a school's ranking score. Other items in the formula include adjusted counts of published scholarly papers, books and conference proceedings (15%); several different counts of citations of published materials (50%); and counts of international collaborations (10%).

Note that the list order above differs from from the order of USN&WR "Best Universities," as shown in Figure 12.1.1. Why this order makes sense for a global list even as it contradicts other USN&WR lists is not explained by the publisher.

[3] A list of the peers used for comparison on this page is published in Appendix A.

## The University is a top-25 institution globally according to the Times Higher Education ordered list.

### 12.2.1 Times Higher Education (London) World University Rankings, U-M and Peers[3], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Stanford University | 4 | 4 | 3 | 3 | 3 |
| Massachusetts Institute of Technology | 5 | 6 | 5 | 5 | 5 |
| Harvard University | 2 | 2 | 6 | 6 | 6 |
| University of Chicago | 9 | 11 | 10 | 10 | 9 |
| University of Pennsylvania | 16 | 16 | 17 | 13 | 10 |
| Yale University | 11 | 9 | 12 | 12 | 12 |
| Johns Hopkins University | 15 | 15 | 11 | 17 | 13 |
| Columbia University | 13 | 14 | 15 | 16 | 14 |
| University of California-Los Angeles | 12 | 12 | 16 | 14 | 15 |
| University of California-Berkeley | 8 | 8 | 13 | 10 | 18 |
| Cornell University | 19 | 19 | 18 | 19 | 19 |
| Northwestern University | 22 | 21 | 25 | 20 | 20 |
| University of Michigan | 18 | 17 | 21 | 21 | 21 |
| University of Washington | 25 | 26 | 32 | 25 | 25 |
| New York University | 40 | 38 | 30 | 32 | 27 |
| University of Illinois | 29 | 29 | 36 | 36 | 37 |
| University of Wisconsin | 30 | 29 | 50 | 45 | 43 |
| University of Texas | 27 | 28 | 46 | 50 | 49 |
| University of North Carolina | 47 | 46 | 63 | 56 | 56 |
| University of Southern California | 70 | 75 | 68 | 60 | 66 |
| University of Maryland | 108 | 132 | 117 | 67 | 69 |
| Ohio State University | 59 | 68 | 90 | 72 | 70 |
| University of Virginia | 112 | 130 | 147 | 121 | 113 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: Times Higher Education.

Times Higher Education publishes two separate ordered lists 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%), International outlook (7.5%), and Industry income (2.5%).

[3] A list of the peers used for comparison on this page is published in Appendix A.

## The U-M is listed 14th in the world according to the most recent Times Higher Education list based on academic reputation.

### 12.2.2 Times Higher Education (London) World Reputation Rankings, U-M and Peers[4], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Harvard University | 1 | 1 | 1 | 1 | 1 |
| Massachusetts Institute of Technology | 2 | 2 | 4 | 2 | 2 |
| Stanford University | 6 | 3 | 5 | 3 | 3 |
| University of California-Berkeley | 5 | 6 | 6 | 6 | 6 |
| Yale University | 10 | 8 | 8 | 8 | 8 |
| Columbia University | 13 | 12 | 10 | 9 | 9 |
| University of Chicago | 14 | 14 | 11 | 11 | 12 |
| University of California-Los Angeles | 8 | 10 | 13 | 13 | 13 |
| University of Michigan | 12 | 15 | 19 | 14 | 15 |
| University of Pennsylvania | 18 | 22 | 23 | 16 | 19 |
| Cornell University | 17 | 17 | 20 | 17 | 21 |
| Johns Hopkins University | 19 | 18 | 18 | 22 | 23 |
| New York University | 29 | 27 | 20 | 25 | 25 |
| Northwestern University | 37 | 37 | 47 | 30 | 31 |
| University of Texas | 27 | 33 | 46 | 34 | 32 |
| University of Wisconsin | -- | -- | -- | -- | 32 |
| University of Washington | 27 | 31 | 33 | 29 | 34 |
| University of Illinois | 24 | 23 | 30 | 30 | 36 |
| University of North Carolina | 51-60 | 61-70 | 61-70 | 51-60 | 50 |
| Ohio State University | 51-60 | 51-60 | 81-90 | 51-60 | 61-70 |
| University of Maryland | 91-100 | 81-90 | 91-100 | 51-60 | 71-80 |
| University of Southern California | 61-70 | 61-70 | 61-70 | 61-70 | 71-80 |
| University of Virginia | -- | -- | -- | -- | -- |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: Times Higher Education.

The World Reputation Rankings (above) are based on subjective judgments collected from an invitation-only survey returned by more than 10,000 academics from around the world for the 2017 edition, distributed to reflect the demographics of world scholarship.

The survey asks each respondent to name no more than 10 universities that he or she considers to be the "best." The rankings are assembled based on the frequency that each institution is included on the respondent's lists of best institutions in their fields.

[4] A list of the peers used for comparison on this page is published in Appendix A.

## Michigan regularly scores highly based on the QS methodology, which attributes 80 percent of the score to academic reputation, citation frequency of faculty publications, and the student-faculty ratio.

### 12.3 QS (Quacquarelli Symonds) World University Rankings, U-M and Peers[5], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Massachusetts Institute of Technology | 1 | 1 | 1 | 1 | 1 |
| Stanford University | 7 | 7 | 3 | 2 | 2 |
| Harvard University | 2 | 4 | 2 | 3 | 3 |
| University of Chicago | 9 | 11 | 10 | 10 | 9 |
| Cornell University | 15 | 19 | 17 | 16 | 14 |
| Yale University | 8 | 10 | 15 | 15 | 16 |
| Johns Hopkins University | 16 | 14 | 16 | 17 | 17 |
| Columbia University | 14 | 14 | 22 | 20 | 18 |
| University of Pennsylvania | 13 | 13 | 18 | 18 | 19 |
| MICHIGAN | 22 | 23 | 30 | 23 | 21 |
| University of California-Berkeley | 25 | 27 | 26 | 28 | 27 |
| Northwestern University | 29 | 34 | 32 | 26 | 28 |
| University of California-Los Angeles | 40 | 37 | 27 | 31 | 33 |
| New York University | 44 | 41 | 53 | 46 | 52 |
| University of Wisconsin | 37 | 41 | 54 | 54 | 55 |
| University of Washington | 59 | 65 | 65 | 59 | 61 |
| University of Texas | 71 | 79 | 77 | 67 | 67 |
| University of Illinois | 56 | 63 | 59 | 66 | 69 |
| University of North Carolina | 54 | 62 | 79 | 78 | 80 |
| Ohio State University | 113 | 109 | 99 | 88 | 86 |
| University of Maryland | 116 | 122 | 126 | 131 | 129 |
| University of Southern California | 125 | 131 | 130 | 136 | 132 |
| University of Virginia | 132 | 141 | 172 | 172 | 173 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

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% of 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 peers used for comparison on this page is published in Appendix A.

## The U-M consistently scores in the top 25 of universities worldwide and in the top 20 of U.S. universities according to the ordered list published by Shanghai Jiao Tong University.

### 12.4 Academic Ranking of World Universities, U-M and Peers[6], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Harvard University | 1 | 1 | 1 | 1 | 1 |
| Stanford University | 2 | 2 | 2 | 2 | 2 |
| Massachusetts Institute of Technology | 4 | 3 | 3 | 5 | 4 |
| University of California-Berkeley | 4 | 4 | 4 | 3 | 5 |
| Columbia University | 8 | 8 | 8 | 9 | 8 |
| University of Chicago | 9 | 9 | 9 | 10 | 10 |
| Yale University | 11 | 11 | 11 | 11 | 11 |
| University of California-Los Angeles | 12 | 12 | 14 | 12 | 12 |
| University of Washington | 16 | 15 | 15 | 15 | 13 |
| Cornell University | 12 | 13 | 13 | 13 | 14 |
| University of Pennsylvania | 15 | 16 | 17 | 18 | 17 |
| Johns Hopkins University | 17 | 17 | 16 | 16 | 18 |
| Northwestern University | 30 | 28 | 27 | 26 | 22 |
| MICHIGAN | 23 | 22 | 22 | 23 | 24 |
| University of Wisconsin | 19 | 24 | 24 | 28 | 28 |
| New York University | 27 | 27 | 27 | 29 | 29 |
| University of North Carolina | 43 | 36 | 39 | 35 | 33 |
| University of Illinois | 25 | 28 | 29 | 30 | 37 |
| University of Texas | 36 | 39 | 37 | 44 | 51 |
| University of Maryland | 38 | 43 | 43 | 52 | 53 |
| University of Southern California | 47 | 51 | 49 | 49 | 54 |
| Ohio State University | 65 | 64 | 67 | 79 | 80 |
| University of Virginia | 101-150 | 101-150 | 101-150 | 151-200 | 151-200 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

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 1,300 universities are ranked by ARWU every year and the best 500 are published on the web.

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

[6] A list of the peers used for comparison on this page is published in Appendix A.

## A large proportion of University of Michigan graduate programs received high marks from the National Research Council assessment.

### 12.5 National Research Council Graduate Program Assessment, U-M and Selected Peers, 2005-06.

| University | Number of Programs Ranked | Percent of Programs where best S (survey) Ranking was in | | Percent of Programs where best R (Direct) Ranking was in | |
|---|---|---|---|---|---|
| | | Top half | Top quartile | Top half | Top quartile |
| University of Wisconsin | 78 | 90% | 77% | 95% | 74% |
| University of Minnesota | 69 | 77% | 51% | 80% | 55% |
| MICHIGAN | 65 | 98% | 82% | 100% | 92% |
| Cornell University | 61 | 90% | 69% | 95% | 80% |
| University of California-Los Angeles | 59 | 93% | 76% | 93% | 85% |
| University of Washington | 59 | 93% | 76% | 95% | 75% |
| University of Illinois | 58 | 91% | 62% | 91% | 79% |
| Harvard University | 52 | 100% | 100% | 100% | 100% |
| University of California-Berkeley | 52 | 100% | 94% | 100% | 98% |
| University of North Carolina | 51 | 86% | 67% | 100% | 76% |
| Yale University | 49 | 100% | 80% | 100% | 82% |
| Columbia University | 47 | 94% | 81% | 96% | 74% |
| Stanford University | 47 | 100% | 94% | 100% | 91% |
| Indiana University | 44 | 80% | 48% | 91% | 57% |
| Average of All AAU Institutions | 42 | 86% | 61% | 89% | 64% |
| University of Pennsylvania | 41 | 100% | 90% | 100% | 85% |
| University of Virginia | 38 | 76% | 42% | 95% | 55% |
| University of Chicago | 37 | 95% | 78% | 95% | 86% |
| Northwestern University | 31 | 97% | 84% | 97% | 90% |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: National Research Council.

The National Research Council (NRC) 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 2005-06. 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.

## 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* ordered list, which focuses on universities' contributions to society.

### 12.6 *Washington Monthly* National University Rankings, U-M and Peers[7], 2012-16.

| University | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| Stanford University | 3 | 6 | 6 | 5 | 1 |
| Harvard University | 11 | 8 | 10 | 8 | 2 |
| Massachusetts Institute of Technology | 15 | 11 | 14 | 15 | 2 |
| University of Pennsylvania | 27 | 21 | 41 | 37 | 5 |
| University of California-Berkeley | 5 | 5 | 3 | 4 | 7 |
| University of California-Los Angeles | 6 | 10 | 5 | 6 | 8 |
| Yale University | 41 | 54 | 57 | 44 | 13 |
| University of Washington | 8 | 13 | 7 | 7 | 14 |
| University of North Carolina | 4 | 14 | 12 | 11 | 20 |
| MICHIGAN | 13 | 12 | 13 | 13 | 21 |
| Columbia University | 36 | 32 | 51 | 49 | 23 |
| Cornell University | 19 | 43 | 39 | 36 | 27 |
| University of Wisconsin | 18 | 15 | 17 | 19 | 28 |
| University of Illinois | 22 | 19 | 26 | 27 | 33 |
| University of Southern California | 50 | 67 | 72 | 65 | 46 |
| Johns Hopkins University | 46 | 34 | 48 | 48 | 47 |
| University of Virginia | 48 | 51 | 60 | 63 | 54 |
| University of Maryland | -- | 50 | 58 | 60 | 56 |
| Ohio State University | 37 | 28 | 18 | 18 | 69 |
| University of Chicago | 29 | 46 | 53 | 55 | 92 |
| Northwestern University | 75 | 58 | 101 | 106 | 99 |
| New York University | 77 | 79 | 96 | 97 | 174 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: Washington Monthly.

*Washington Monthly* lists 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.

[7] A list of the peers used for comparison on this page is published in Appendix A.

## Michigan performs well according to the "return on investment" metrics that are the focus of *Forbes*' America's Top Colleges list.

### 12.7 America's Top Colleges (*Forbes*), U-M and Peers[8], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Harvard University | 8 | 7 | 6 | 4 | 1 |
| Stanford University | 1 | 2 | 3 | 1 | 2 |
| Yale University | 4 | 6 | 5 | 6 | 5 |
| Massachusetts Institute of Technology | 10 | 5 | 10 | 5 | 5 |
| University of Pennsylvania | 11 | 12 | 12 | 11 | 7 |
| Columbia University | 5 | 20 | 15 | 16 | 14 |
| Cornell University | 19 | 31 | 25 | 29 | 15 |
| University of Chicago | 14 | 24 | 20 | 20 | 16 |
| Northwestern University | 17 | 19 | 16 | 15 | 28 |
| University of California-Berkeley | 22 | 37 | 35 | 40 | 29 |
| Johns Hopkins University | 46 | 67 | 62 | 66 | 30 |
| MICHIGAN | 30 | 45 | 41 | 44 | 38 |
| University of Virginia | 29 | 40 | 36 | 36 | 40 |
| University of Southern California | 63 | 78 | 71 | 65 | 44 |
| University of California-Los Angeles | 34 | 44 | 45 | 46 | 48 |
| New York University | 56 | 72 | 77 | 77 | 52 |
| University of North Carolina | 38 | 50 | 49 | 47 | 68 |
| University of Illinois | 53 | 68 | 68 | 72 | 69 |
| University of Maryland | 73 | 82 | 93 | 82 | 72 |
| University of Washington | 55 | 73 | 76 | 75 | 79 |
| University of Wisconsin | 68 | 70 | 69 | 69 | 87 |
| University of Texas | 66 | 76 | 82 | 93 | 91 |
| Ohio State University | 138 | 155 | 155 | 160 | 131 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: *Forbes*.

America's Top Colleges is a ranking of 650 colleges and universities (in 2017) that *Forbes* and the Washington, D.C.-based Center for College Affordability and Productivity (CCAP) have produced since 2008. The distinction that Forbes make about its list is the focus 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 2016 rankings, which includes indicators of post-graduate success (35%), student debt (20%), the student experience (20%), graduation rates (20%), and academic success (12.5%).

[8] A list of the peers used for comparison on this page is published in Appendix A.

## The U-M is listed among the top 25 universities according to an international list based on measures of faculty and alumni achievements.

### 12.8 Center for World University Rankings, U-M and Peers[9], 2013-17.

| University | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Harvard University | 1 | 1 | 1 | 1 | 1 |
| Stanford University | 2 | 2 | 2 | 2 | 2 |
| Massachusetts Institute of Technology | 4 | 3 | 3 | 3 | 3 |
| Columbia University | 6 | 6 | 6 | 6 | 6 |
| University of California-Berkeley | 7 | 7 | 7 | 7 | 7 |
| University of Chicago | 9 | 8 | 8 | 8 | 8 |
| Yale University | 10 | 10 | 11 | 10 | 10 |
| Cornell University | 13 | 11 | 10 | 12 | 12 |
| University of Pennsylvania | 12 | 14 | 14 | 14 | 14 |
| University of California-Los Angeles | 16 | 15 | 15 | 15 | 15 |
| Johns Hopkins University | 17 | 19 | 16 | 16 | 16 |
| Northwestern University | 28 | 23 | 22 | 21 | 17 |
| New York University | 19 | 17 | 18 | 22 | 19 |
| MICHIGAN | 32 | 21 | 19 | 19 | 22 |
| University of Washington | 31 | 32 | 31 | 27 | 25 |
| University of Wisconsin | 23 | 25 | 25 | 25 | 26 |
| University of Texas | 26 | 29 | 30 | 32 | 30 |
| University of Illinois | 24 | 28 | 33 | 34 | 36 |
| University of North Carolina | 34 | 45 | 40 | 38 | 38 |
| University of Virginia | 71 | 41 | 41 | 40 | 40 |
| University of Southern California | 39 | 51 | 51 | 44 | 45 |
| Ohio State University | 52 | 47 | 49 | 46 | 48 |
| University of Maryland | 59 | 76 | 72 | 68 | 80 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

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 foregoes any opinion surveys, relying on data about quality of education, alumni employment, faculty awards and publicaitons, among other factors.

The education quality measure is based on a weighted measure of alumni who have won major international awards, prizes, and medals. Almuni employment is a weighted count of alumni who have held CEO positions at the world's top companies.

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

Other factors that go into the ranking calculation include a count of research publications in major journals, the frequency that papers are cited by others, and a count of international patent filings.

[9] A list of the peers used for comparison on this page is published in Appendix A.

## The U-M is listed fifth among U.S. public universities and colleges as a good value for students.

**12.9 *Kiplinger's* Best Value Public Colleges, U-M, Public Peer[10] and Public Big Ten Universities, 2013-17.**

| University | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| University of North Carolina † | 1 | 1 | 1 | 1 | 1 |
| University of Virginia † | 2 | 2 | 3 | 2 | 3 |
| MICHIGAN * | 6 | 6 | 5 | 5 | 4 |
| University of California-Berkeley † | 9 | 4 | 4 | 3 | 5 |
| University of California-Los Angeles † | 5 | 5 | 6 | 6 | 6 |
| University of Washington † | 13 | 11 | 9 | 12 | 7 |
| University of Texas † | 21 | 14 | 13 | 13 | 8 |
| University of Maryland †* | 7 | 9 | 11 | 8 | 10 |
| University of Wisconsin †* | 8 | 8 | 8 | 11 | 13 |
| Purdue University * | 40 | 27 | 19 | 34 | 15 |
| University of Minnesota * | 44 | 32 | 25 | 20 | 23 |
| Ohio State University †* | 26 | 15 | 17 | 22 | 25 |
| University of Illinois †* | 38 | 36 | 26 | 16 | 30 |
| Indiana University * | 37 | 40 | 44 | 55 | 33 |
| Rutgers University * | 47 | 43 | 47 | 33 | 34 |
| Michigan State University * | 41 | 50 | 40 | 38 | 40 |
| Pennsylvania State University * | 53 | 56 | 49 | 44 | 51 |
| University of Iowa * | 56 | 86 | 57 | 79 | 55 |
| University of Nebraska * | 83 | 68 | 75 | 81 | 83 |

† indicates a U-M peer university; * indicates a Big Ten university.

SOURCE: *Kiplinger's Personal Finance*.

The "best value" rankings published by *Kiplinger's Personal Finance* starts with a pool of about 1,200 public and private four-year universities and colleges that it obtains from Peterson's, an educational data company and guide publisher. Criteria that indicate a school's "academic quality" and cost to students is used to rank schools, with 55 percent of the ranking on "quality criteria" and the remainder on "cost criteria." In the end, Kiplinger's provides a list of the top 300 public and private schools, as well as three separate lists of the top 50 private universities, top 50 liberal arts colleges, and top 100 public universities.

Academic quality indicators include the admission rate (percentage of applicants offered admission) and "yield" (percentage of those admitted who enroll) for each school, SAT and ACT schores of enrolled students, four-year graduate rate, freshman retention rate, and student-to-faculty ratio.

Cost indicators include the total cost of attendance (tuition, fees, room and board, books), the amounts of need-based grants, non-need-based aid, the percentage of students who borrow to finance their educations, and the average student debt at graduation.

The public university rankings above,is based on Kiplinger's calculations for in-state students. Kiplinger's also publishes rankings for out-of-state students attending public universities (to offer a way to compare to private universities); those rankings are not included here.

[10] A list of the peers used for comparison on this page is published in Appendix A.

## *MONEY Magazine* latest ordered list places the U-M second among U.S. public universities and colleges, and third overall.

### 12.10 *MONEY's* Best Colleges, U-M and Peer[11] Universities, 2014-17.

| University | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| University of Michigan | 22 | 18 | 2 | 3 |
| University of California-Berkeley | 13 | 9 | 5 | 4 |
| University of California-Los Angeles | 31 | 26 | 20 | 5 |
| Stanford University | 5 | 1 | 10 | 5 |
| Harvard University | 6 | 6 | 3 | 10 |
| Massachusetts Institute of Technology | 3 | 3 | 11 | 8 |
| University of Virginia | 16 | 17 | 9 | 11 |
| University of Washington | 47 | 56 | 30 | 13 |
| Yale University | 15 | 21 | 12 | 14 |
| University of Maryland | 68 | 54 | 19 | 20 |
| Columbia University | 22 | 28 | 52 | 21 |
| University of Illinois | 76 | 75 | 22 | 22 |
| University of Pennsylvania | 11 | 12 | 26 | 27 |
| University of Texas | n/a | 82 | 50 | 31 |
| University of Wisconsin | 99 | 116 | 63 | 45 |
| University of Chicago | 101 | 127 | 83 | 54 |
| Cornell University | 24 | 34 | 64 | 59 |
| University of North Carolina | 40 | 46 | 45 | 60 |
| Ohio State University | 144 | 134 | 130 | 102 |
| Northwestern University | 129 | 89 | 70 | 103 |
| University of Southern California | n/a | n/a | 155 | 116 |
| Johns Hopkins University | n/a | 85 | 81 | 131 |
| New York University | n/a | n/a | 306 | 210 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: *MONEY Magazine*.

*MONEY Magazine* made major changes to its methodology for the 2016 ordered list, which contributed to the large changes to the placement of many schools. A few more changes went into the formula used to produce the 2017 list, such as a factor flagging schools experiencing financial troubles, a small boost to scores for schools with the lowest net price for students from low-income families, and the introduction of a "social mobility" factor tied to incomes of low-income students six years after graduation.

Overall, Money's methodology uses 17 factors across three categories: quality of education (such as graduation rate, academic preparation of the student body, and student-faculty ratio); affordability (such as net price of a degree, student and parent debt at graduation, risk of loan default, and net price to low-income families); and outcomes (such as PayScale.com earnings reports of alumni, career services offered and a "market" valuation of alumni skills).

[11] A list of the peers used for comparison on this page is published in Appendix A.

## U-M ranked second among public universities in a ranking of U.S. universities launched two years ago.

### 12.11 *Wall Street Journal* - Times Higher Education U.S. College Rankings, U-M and Peer[12] Universities, 2017.

| University | 2016 | 2017 |
|---|---|---|
| Harvard University | 2 | 1 |
| Columbia University | 5 | 2 |
| Massachusetts Institute of Technology | 3 | 3 |
| Stanford University | 1 | 3 |
| Yale University | 6 | 6 |
| University of Pennsylvania | 4 | 8 |
| Cornell University | 8 | 10 |
| University of Chicago | 14 | 11 |
| Northwestern University | 10 | 15 |
| University of Southern California | 17 | 15 |
| Johns Hopkins University | 13 | 17 |
| University of California-Los Angeles | 28 | 25 |
| University of Michigan | 22 | 27 |
| New York University | 26 | 29 |
| University of North Carolina | 30 | 33 |
| University of California-Berkeley | 35 | 40 |
| University of Illinois | 45 | 48 |
| University of Texas | 52 | 56 |
| University of Virginia | 50 | 56 |
| Ohio State University | 68 | 69 |
| University of Wisconsin | 63 | 71 |
| University of Maryland | 96 | 82 |
| University of Washington | 75 | 89 |

Data for public universities are shaded in yellow; private university data are shaded in blue.

SOURCE: *MONEY Magazine*.

Data used for creating this ordered list comes from two surveys conducted by Times Higher Education – one of students and one of academic leaders and professors. Other inputs come from U.S. Department of Education datasets, the federal College Scorecard, Bureau of Economic Analysis data, and academic citations data provided by Elsevier.

A school's placement on the list is weighted according to the following factors: Budget resources per student (11%), the number of faculty per student (11%), the count of research paper published per student (8%), interpretations of student responses to survey questions about engagement, interactions with teachers and students, and other topics (20%), graduation rates (11%), the school's academic reputation (10%), a mystery calculation related to salary after graduation and loan repayment success (19%), and campus demographics (10%).

[12] A list of the peers used for comparison on this page is published in Appendix A.


Ultra-ware
Fisherbrand
NITRILE EXAMINATION GLOVES
Comfort

# Appendices



*Chart updated since the September 2017 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*
- *Johns Hopkins University*
- *Massachusetts Institute of Technology*
- *New York University*
- *Northwestern University*
- Ohio State University
- *Stanford University*
- University of California-Berkeley
- University of California-Los Angeles
- *University of Chicago*
- University of Illinois at Urbana-Champaign
- University of Maryland-College Park
- University of North Carolina at Chapel Hill
- *University of Pennsylvania*
- *University of Southern California*
- University of Texas at Austin
- 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)** The **Big Ten**, an athletic conference formed in 1896 by seven public and private universities. The Big Ten membership is currently 14, listed below with the year the school joined the conference in parenthesis. (Northwestern University, in italics, is the only private institution now in the Big Ten. The (private) University of Chicago was a charter member, but left the conference in 1946.)

- Indiana University (1899)
- Michigan State University (1949)
- *Northwestern University* (1896)
- Ohio State University (1912)
- Pennsylvania State University (1990)
- Purdue University (1896)
- Rutgers University (2014)
- University of Illinois (1896)
- University of Iowa (1899)
- University of Maryland (2014)
- University of Michigan (1896)
- University of Minnesota (1896)
- University of Nebraska (2011)
- University of Wisconsin (1896)

## Appendix B: Notes on Charts

### Chapter 1 – Overview of the University

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

**1.2.1 Student Fall Enrollment, 1841-present.**
SOURCE: Counts compiled from several sources. The Office of the Registrar is the data source 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 Human Resources snapshot data set.

**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 that excludes 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.

**2.3.2 SAT Critical Reading and Math Scores for New Freshmen at U-M and Peer Institutions.**
Freshman enrollment is based on IPEDS data for full-time, first-time degree/certificate-seeking undergraduate students.

**2.3.3 SAT Critical Reading and Math Scores for New Freshmen at U-M and Big Ten Universities.**
The University of Nebraska joined the Big Ten in 2011 and have been included in this chart from that year on.
The University of Maryland and Rutgers University joined the Big Ten in 2014 and have been included in this chart 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.**
SOURCE: SA05 Third Week Count data set, Report 115, Office of the Registrar.
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.**
SOURCE: IPEDS data for First-time degree/certificate-seeking undergraduate students, by in-state/out-of-state/international status.

**2.6.3 U-M Undergraduate Student Fall Enrollment from the State of Michigan, by Region and County.**
SOURCE: SA05 Third Week Count data set, Report 115, Office of the Registrar.

**2.6.4 U-M Undergraduate Student Enrollment, by State.**
SOURCE: SA05 Third Week Count data set, Report 115, Office of the Registrar.

## Chapter 3 – Undergraduate Students: Affordability

**3.1 Undergraduate Tuition and Required Fees, per Semester.**
Tuition rates for 2017-18 were approved by the Board of Regents on June 15, 2017.
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.

## Chapter 4 - Undergraduate Student Success

**4.1 Graduation Rates for U-M and AAU Public and Private Universities for Freshman Cohorts.**
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.

**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 (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 Level.**
There are two different methods for grouping graduate students by level. In one method, all Master's program students are combined to determine the number of students in any Master's program. This count is reflected in Registrar Report 102. In another method, Master's students in non-professional or "academic" programs are grouped, and "professional" Master's students, such as those seeking an M.B.A. or M.Arch, are grouped with professional students, such as M.D. and J.D. This second method is used for most Almanac charts reporting on graduate education.

**5.1.2 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).

**6.3.2 Faculty Member of National Academies, by Discipline, 2016.**
Starting with the 8th edition, the American Academy of Arts and Sciences membership is included in the chart.

**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.**
SOURCE: Trends in Administration Report, Office of Budget and Planning.

**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 and 7.5.2 Race and Ethnicity Distribution/Sex Distribution of Graduate and Professional Students.**
All years exclude a small number of not-candidate-for-degree (NCFD) guest students who have no entry for their discipline category.

**7.5.3 and 7.5.4 Race and Ethnicity Distribution/Sex Distribution of Graduate Academic Students.**
These counts include only graduate students enrolled through the Rackham School of Graduate Studies.
Starting in 2016, the counts in the Life Sciences category declined due to reclassification of some Nursing graduate programs from Rackham enrollment to School of Nursing enrollment, shifting these students to the Professional pool (charts 7.5.5 and 7.5.6).

**7.5.5 and 7.5.5 Race and Ethnicity Distribution/Sex Distribution of Professional Students.**
These counts include only graduate students enrolled through individual schools and colleges, not the Rackham School of Graduate Studies.
Starting in 2016, the counts in the Other Professional category increased due to reclassification of some Nursing graduate programs from Rackham enrollment to School of Nursing enrollment, shifting these students to the Professional pool.

## Chapter 8 – Teaching & Learning

**8.1 Composition of Instructional Workforce by Full-time Equivalents (FTEs).**
This chart does not include clinical and adjunct faculty (1,355 FTEs). While these individuals have roles in instruction, their participation is of a different kind than tenured/tenure-track faculty, lecturers and graduate student 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 Programs[1] Grouped by Broad Disciplinary Categories (Rackham Divisions[2])

### Biological & Health Science / Life Sciences (Rackham Division 1)

- Agriculture
- Bioinformatics
- Biology (Cellular, Molecular, Developmental, Neural, Chemical, Evolutionary, etc.)
- Biomaterials
- Biostatistics
- Chemistry
- Clinical Research
- Ecology
- Environmental Health Science
- Epidemiological Science
- Genetic Counseling
- Health & Health Care Research
- Health Services Organization and Policy
- 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 Sciences
- Biophysics
- Chemistry
- Complex Systems
- 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
- Robotics
- 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
- Judaic Studies
- Linguistics
- Medical & Biological Illustration
- Museum Studies
- Music (Composition, Education, Musicology, Performance, Theory, etc.)
- Philosophy
- Screen Arts and Cultures
- 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 and Professional Degree Programs at the University of Michigan

### Graduate Academic Degree Programs (U-M refers to these as "Rackham degrees")

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 Musical Arts (D.M.A.)
- Doctor of Philosophy (Ph.D.)
- Doctor of the Science of Law (S.J.D.)

### Other Graduate Degree Programs (U-M refers to these as "Non-Rackham degrees")

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.)

College of Engineering

- Master of Engineering (M. Eng.)
  Concentration areas: Pharmaceutical Engineering, Construction Engineering and Management, Structural Engineering, Integrated Microsystems, Space Engineering, Manufacturing, Applied Climate, Automotive Engineering, Energy Systems Engineering, Global Automotive and Manufacturing, Robotics and Autonomous Vehicles
- Doctor of Engineering (D. Eng.)
  Concentration areas: Manufacturing, Engineering

Law School

- Master of Comparative Law (M.C.L.)
- Master of Laws (L.L.M.)

Medical School

- Master in Health Professions Education (M.H.P.E.)

School of Information

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

School of Music, Theatre & Dance

- Master of Music (M.M.)
  Concentrations areas: 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 areas: Church Music; Ethnomusicology; Music Education; Performance;

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.)

### Professional Degree Programs

School of Dentistry

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

Law School

- Juris Doctor (J.D.)

Medical School

- Doctor of Medicine (M.D.)

School of Nursing

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

College of Pharmacy

- Doctor of Pharmacy (Pharm.D.)

## 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.

**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.

**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.

**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.

**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. This phrase does *not* include the Medical School; for purposes of the Michigan Almanac, the Medical School is included as part of the Ann Arbor campus.

**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: A full moon shines over the Michigan Union.
Photographer: Scott Soderberg

Page 2: Escapade, a welcome event for students, is held each September.
Photographer: Scott Soderberg

Page 38: Spring 2016 Commencement.
Photographer: Scott Soderberg

Page 44: Engineering graduate students test MARLO, a bipedal robot, on the Wave Field, North Campus.
Photographer: Daryl Marshke

Page 72: At work in the dance studio.
Photographer: Connor Bade

Page 86: Students in a lecture hall.
Photographer: Scott Soderberg

Page 104: U-M student teachers at an Ann Arbor middle school.
Photographer: Austin Thomason

Page 118: Student at work in the Lay Automotive Laboratory.
Photographer: Eric Bronson

Page 132: A behind-the-scenes look at the installation of a Kelsey Museum exhibit.
Photographer: Austin Thomason

Page 144: The fountain sculpture "Sunday Morning in Deep Waters" on the Ann Arbor campus.
Photographer: Connor Bade

Page 156: The U-M Museum of Art.
Photographer: Connor Bade

Page 174: Students prep to grow algae for biofuel.
Photographer: Daryl Marshke

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