

University of Minnesota
Cost of Online vs Classroom-based Education

Report to the Minnesota Legislature
2020

The Cost of Online vs. Classroom-based Education at the University of Minnesota

Senate File 2415 – Section 43

In 2019, the Minnesota State Legislature requested that the University of Minnesota “provide a report by January 15, 2020, to the members of the legislative committees with jurisdiction over higher education issues related to the tuition differential for online courses and additional online fees.

Specifically, the Legislature requested the University provide:

- An analysis of one-time investments and ongoing costs needed to provide online courses.
- A comparison of these costs with one-time investments and ongoing costs needed for in-person courses (including campus physical infrastructure and classroom space, and other costs).
- Plans to achieve parity in the amount charged for online courses and comparable in-person courses by the 2021-22 academic year.
- If the U of M determines that parity cannot be achieved, justification for the difference in cost.

In addressing the above items, this report provides additional background on the status of online learning at the University of Minnesota; the current context for online learning cost and pricing at the U of M and nationally; and recommendations for the future.

Report Preparation Costs

Per the requirements set forth in Minnesota Statute 3.197, the cost to prepare this report was \$400.

Overview of Online Learning at the University of Minnesota

Online learning has become increasingly important in fulfilling the University of Minnesota’s teaching and learning mission. As at other institutions, online learning:

- Provides resident students on all campuses with additional class scheduling options that can support on-time degree completion, benefiting both the students and the university;
- Enables those who have already completed an undergraduate degree to continue their studies, especially in professional areas, without having to quit their jobs or move to the Twin Cities;
- Provides learners who were unable to complete an undergraduate degree immediately following high school the opportunity to do so while still meeting work and family responsibilities.
- Makes available continuing education options to maintain professional licenses, enhance skill sets in current jobs, and enable new career pathways.

In the 2018-19 academic year, across all University of Minnesota campuses, nearly 6.5% of class sections and 8% of course enrollments were provided in completely online environments, with an additional 2% of courses and enrollments being classified as partially or primarily online (i.e., students did have to be on a campus physically for a portion of the course). However, the number of online course offerings and enrollments in online courses varied across the system in the following ways:

- The University of Minnesota – Crookston is most heavily invested in the creation of online courses and enrollments. Over 30% of the courses at Crookston, representing 43% of total

course enrollments, are now completely online. Totally online enrollments on the other University of Minnesota campuses are as follows:

- Duluth: 4%
 - Morris: 1%
 - Rochester: 1%
 - Twin Cities: 8%
- Completely online courses at the University of Minnesota are slightly more prevalent in graduate education (nearly 11% of enrollments) vs. undergraduate education (8.3% of enrollments). The Carlson School of Management and the School of Public Health, in particular, have invested most heavily in post-graduate level courses and full programs (e.g., Carlson online MBA).
 - On the Twin Cities campus, some of the largest online undergraduate courses are in Chemistry, Geography, Writing, and Psychology, although there continue to be in-person, on-campus equivalent courses. The University has also moved many elements of its “first-year experience” programming and curriculum to an on-line environment.
 - Summer enrollments at the University of Minnesota overall have been slowly declining for several years. However, there has been an increase in summer online activity, and today nearly 40% of summer enrollments come through online courses.
 - Finally, with the significant exception of the University of Minnesota Crookston and a few professional programs on the Twin Cities campus, such as the Carlson online MBA, a large proportion of the online course enrollment at the University of Minnesota derives from full-time degree-seeking students who are also taking place-based courses on one of our campuses. The reasons these students take online courses vary– scheduling needs or convenience, the need to complete additional courses to assure timely graduation, the availability of a specialized course on a campus other than the campus of residency, etc.

One-time investments and ongoing resources needed to provide online courses

Both national studies and the experience of the University of Minnesota suggest that online courses and programs (other than large scale, low faculty contact models) cost more to develop, deliver, and support than face-to-face instruction, especially in the early stages of course development.

Online and distance learning cost and price issues have been addressed in several national studies, with the most significant authored by WICHE Cooperative for Educational Technologies (WCET) staff members Russell Poulin and Terri Taylor Straut in February 2017, entitled **Distance Education Price and Cost Report**. Among the issues highlighted in this report:

- **The difference and relationship between cost and price** - “Cost” is the amount of money spent by the institution to create, offer, and support instruction, and “price” is the amount of money charged a student for instruction, including tuition and fees. The report found that, in most

cases, the price of a course is not fully determined by the cost to produce that course, and this for a variety of reasons, including competitive market factors, and internal institutional cross-subsidies.

- **Cost and quality are closely related for online courses and can vary significantly.** According to Carol Twigg, former Vice President of Educom, “The simple answer to this question about price and cost is that a distance education course can cost anything you want it to cost, from \$1,000 to \$1 million.” The variances can be attributed to course design differences and a variety of instructional choices. The level of engagement between students and faculty is also critical to the issue of quality.
- **Online learning was designed to provide better student access and timely degree completion, not merely to cut costs.** If the sole goal had been cost-cutting for existing students, then a different educational and financial model would have been pursued. The operative priority has been serving students who, because of work or family situations, could not otherwise participate in higher education.
- **Public institutions such as the University of Minnesota differ significantly from online only institutions, and those differences affect the costs of their online offerings–** Online only institutions do not have to support both brick-and-mortar and online classes, and they do not have research or outreach responsibilities, tenured terminal-degree faculty, or even necessarily the same expectations for timely degree completion. This sometimes allows them to deliver larger scale courses at lower cost, but these courses may be lower quality and involve less student support.

Large scale, low-cost online master’s degrees from Coursera and EdX have emerged since the WCET report was written – These highly scalable, low-faculty-contact master’s programs --built on learning platforms developed by the original “MOOC” providers-- have offered a new model for low cost online degree pricing. Concerns have been raised, however, about whether these programs are really paying for themselves and what quality tradeoffs may be made when there are reduced opportunities for students to interact and to engage with faculty members.

Specific Areas Identified by WCET as Higher Cost Items for Online Education

The WCET study involved a survey that broke down online cost into twenty-one separate components. Twelve components were thought by survey respondents to cost the same as face-to-face education; nine were rated as costing more. Many respondents noted additional services not needed in the traditional classroom, and those added costs. Others voiced concern that there would be a loss of student engagement and academic quality if, in cost-cutting, some components were stinted.

The conclusion of both the national analysis and the U of M experience is that the online curriculum costs more to support, develop, and deliver than face-to-face instruction, and that early stages of course development are particularly costly. Online courses and programs require additional initial investments, and yet these investments do not eliminate the need for continued support of the on-campus infrastructure:

- **Technology infrastructure** - A robust technology infrastructure is required to support the development and delivery of the online curriculum. That infrastructure includes a platform to create course content as well as a system for actual course delivery. The University recently invested in Canvas, a learning management system, which assists with the delivery of online

courses. Online learning also depends more heavily on web conferencing (such as that made possible by the new U of M Zoom license) for real-time class sessions, group work, and electronic office hours; interactive technology (e.g., Voicethread) to connect students; and assessment tools such as electronic proctoring. For classes in subjects such as Computer Science and Engineering, a significant additional investment in classroom-based video equipment and operators is required to make classes available to online learners.

- **Initial course design & development** - The design and development of an online course and curriculum are different from the design and development of an in-person curriculum. It is not a matter of merely uploading in-person course content or a syllabus. Online courses utilize advanced technologies to facilitate an “on-campus-like” experience for students. Faculty and technology experts work together to create the course, incorporating interactive, engaging content into the course design. This is expensive. Typically, faculty are teaching a full course load and are paid additional “overload” pay to develop a new online course. In many cases, instructional designers are also hired to work with the faculty to translate the course content into an online format. Together they design an online curriculum that engages students, fosters discussion, and enhances student learning. The goal is to provide a robust and engaging student learning experience online.
- **Ongoing enhancement of course content and delivery** – As occurs with in-person courses, online courses are revised and enhanced over time to improve content and to better meet student needs. However, these improvements increase costs. The University often hires or contracts with instructional designers to modify online courses in order to improve students’ learning experiences, enhance instructors’ ability to assess students’ learning, and increase student interactions with other students and the instructors.
- **Faculty development** – Formal programs are available to teach faculty how to design, develop, and teach online courses, both new offerings and conversions of traditional courses.
- **Student support** - Students who take online courses require and expect 24/7 technology and instructional support. Units (departments, schools, campuses) often need to hire special advisors and tutors for their exclusively online students as these students require a different level and type of support. Units need to provide highly interactive support (without face-to-face communication) for services such as bookstore, career counseling, libraries, and accessibility.
- **Accreditation/state authorization** – There are requirements for regulatory compliance when University of Minnesota students are enrolled from other states.
- **Proctoring/e-Proctoring** – Technologies and monitoring systems need to be employed to ensure academic integrity for students completing assessments remotely.

Provide a comparison of these costs with one-time investments and ongoing costs needed for in-person courses (including campus physical infrastructure and classroom space, and other costs)

In general, the University does not—cannot— track and summarize the total additional cost of online education. These costs are intertwined with those of the larger enterprise of the University’s delivery of a world- class education. Only a small number of units charge online fees to recover a portion of the increased infrastructure and support costs that may be needed for online.

However, several general points are relevant on the matter of costs and cost differentials:

- **Online-related costs are, for the most part, in addition to on-campus investments** – Online investments do not eliminate the need for continued support of the on-campus infrastructure.

- **Potential on-campus cost savings are in the future; existing building infrastructure involves sunk costs.** Cost savings in campus infrastructure would come from future buildings that would not need to be built if increased enrollments occur largely online. Because faculty, instructional designers, and student support staff work on a physical campus, however, and need appropriate infrastructure, even for online instruction, online student enrollments will not eliminate or substantially reduce current infrastructure costs.
- In the annual **2019 Survey of Faculty Attitudes on Technology** conducted by Inside Higher Ed and Gallup, “neither professors nor digital learning leaders believe it is less expensive to offer online courses than in-person courses. Both groups generally agree that online instruction is only less expensive than in-person instruction if colleges reduce spending for faculty, student support or other important factors.”
- The State of Florida work group study (2016) indicated that the total incremental cost related to online education is \$41.48 per student credit hour.¹

Several national studies have summarized the difference between online and classroom-based expenses. A modified version of Russell Poulin and Terri Taylor Straut’s work from Change: The Magazine of Higher Learning, May 22, 2018, illustrates that only the physical classroom is not needed for online, while a significant number of additional services need to be included for online course design, development, and delivery:

Face-to-face instructional delivery	Online instructional delivery
Faculty and direct instructional support for students	Essentially the same faculty and direct student support is needed to provide equivalent instructional quality
Technology infrastructure (learning management systems such as Canvas, online course registration, internet connectivity and wi-fi, etc.)	Online instructional delivery takes advantage of and leverages the same technology infrastructure as face-to-face courses
Student academic support (advisors, tutors, library access, etc.)	Similar student support needed, but at a distance, and often over extended hours compared to on campus courses and programs
Physical classrooms	--
Technical support for student success, including onsite support for student technologies (e.g., laptop support, specialized instructional software support, etc.)	Expanded tech support hours (24x7)
--	Faculty development for effective teaching and learning strategies in an online environment
--	Instructional design and development (for new courses, converting existing courses, or updating existing online courses)
--	Online exam proctoring
--	Interstate compliance with regulations
	Market research and marketing to ensure appropriate investment in programs that will have demand, and communication with prospective audiences

Although there may be some offsetting savings, such as facility costs, from a fully online curriculum, those cost savings are minimal. Moreover, reductions in facility costs are only realized if an entire building is retired. Students taking online courses still need support services, such as advising services, and at the same level of quality, to help ensure their long-term success. There is also a common misconception related to online curriculum in relation to the size of online classes; there are limits to size and limits to savings through scale. As with in-person classes, enrollment in online sections must often be capped, and in some online courses (e.g. composition, public speaking), it must be capped at the same levels as the equivalent in-person courses in order to provide quality instruction. The University works to determine the optimum number of students for the course content being covered, the instructional approach being used, and the medium in which the course is delivered (in-person versus online).

Large Scale Degrees using the Coursera and EdX platforms:

There is one emerging model for lower-cost, large-scale online master's degrees that the University has decided not to pursue at this time. It involves the use of what were formerly called MOOC platforms, from Coursera and EdX, but these provide a student experience with much less interaction between faculty members and students. The University does use the Coursera platform for selected non-credit continuing education offerings.

U of M Online Fee Differentials

The University of Minnesota does not assess higher tuition rates to undergraduates for online courses or charge any system-wide University fees for online courses, so there is no tuition differential between online and face-to-face courses. Courses taken online count within the University's 13-credit band for undergraduate degree seeking students, so students adding an online course after already registering for 13 credits would essentially incur no additional costs for the course.

For some online graduate/professional programs, the tuition rate is determined by market rates for competitive programs nationwide and by the costs of services provided. Examples from some of our more popular master-level programs are noted below:

Program	On-campus per credit rate	Online program per credit rate
Carlson School of Management MBA	\$1674/cr	\$1581/cr
Masters of Health Care Administration	\$1632/cr	\$1632/cr
Master of Science in Computer Science*	\$1465/cr	\$1465/cr
Master of Science in Electrical Engineering*	\$1465/cr	\$1465/cr

*Online programs subject to UNITE fee described below.

The University has implemented an additional online fee only when it was judged necessary for a college or campus to recover some of the additional costs associated with the design and delivery of its online courses. (Details are described below.) Currently, three campuses and two Twin Cities academic units have implemented these additional fees, which generate approximately \$2 million per year. These fees

cover only a small portion of the additional costs associated with online courses and programs. The remaining costs are covered through other sources, such as tuition.

The academic units that charge a separate online fee include the U of M campuses at Crookston, Duluth, and Morris and the Twin Cities campus UNITE (within the College of Science and Engineering) and College of Continuing and Professional Studies. For completely online students, most, if not all, of these fees are offset by these students' not having to pay other fees assessed to on-campus students. The rationale is that there are specific costs associated with online students, as there are specific costs associated with face-to-face students, and students should pay only the fees relevant to their specific academic program circumstances. The following is a summary of the five units that currently assess fees for online students.

Crookston students pay a \$50 per credit fee for online courses. Both distance and residential students enrolled in online courses pay the online fee. The only exception is for residential students taking a course that is offered only online. Crookston students who are 100% online actually pay less in fees than on-campus students, since they are not assessed the campus fee, durable goods/laptop fee, or the student services fee. Here is an example from the Crookston campus, which is similar to other U of M academic units where completely online students pay about the same or less than on-campus students:

Crookston – Full Course Load (13 Credits)	Online Student	On-Campus Student
Tuition	\$5,141	\$5,141
Campus Fee	----	\$250
Durable Goods/Laptop Fee	----	\$250
Student Services Fee	----	\$269
Online Course Fee	\$650	----
Total	\$5,791	\$5,910
Difference		\$119

Crookston on-campus students taking an online course that is available on campus pay a net higher cost for online courses to incentivize those resident students to take, instead, the on-campus offering. This leaves online course slots open for distance students who cannot come to campus.

The Crookston online fee is used to support a set of services that are specifically designed for and needed by online/distance students. These include professional advisors for each major exclusively dedicated to online students; two positions designated to configure and maintain the use of the Canvas learning management system, largely for online students; tutoring services just for online students, tracking any online student on probation, and helping students locate tutors; admissions counselors dedicated to online students; a finance office staff member who specifically serves online students; “overload” pay for faculty to create and develop new courses; and additional technical/instructional support for online students. The online fee generates much needed revenue of approximately \$1.1 million per year to support the specific needs of these online students.

Morris has a fee structure similar to Crookston's, charging \$45 per credit for completely online classes. This generates approximately \$65,000 per year in revenue. As with Crookston students, online only students do not pay the campus-based fees (e.g., student service fees), which often results in lower costs for online only students. Most online courses are offered during the summer, with only a few during the academic year. As with Crookston, Morris students who are completely online (the majority

of the online students) actually pay a lower net cost, because they do not pay for activities, health services, intercollegiate athletics, regional fitness center, student center, or UMM campus fees.

At Morris, the majority of the fee revenue (\$50,000) is spent on instructional designers for the online courses. Morris uses the remainder of the funds to help pay for the additional technology used for online courses, e-proctoring support services, the special website for online students, student guides, live proctoring of paper exams for online students, an online learning coordinator, online student guides, special registration services, the Canvas learning management system guide and training, helping international students navigate national firewalls during the summer sessions, and additional TAs for online courses.

At Duluth, virtually all students taking either a) one or more primarily or completely online course, or b) one or more campus-based technology-intensive class (requiring special software or use of an ongoing computer lab), pay a “full access technology fee” of \$78.50 during the semester in which they are thus enrolled. The fee generates approximately \$400,000 from students taking online courses (50% of the revenue from this fee).

Online student fees primarily fund a portion of the staffing costs associated with online education, including: training and support for faculty who are teaching online, student support, and technical support for the Canvas online learning platform. In addition, the fee funds virtual computing infrastructure and licensing allowing students to use on their personal computers software that would traditionally be found in a computer lab.

On the Twin Cities campus, two units charge fees for online students: the College of Science and Engineering’s UNITE unit, which provides mostly graduate-level courses at a distance; and the College of Continuing and Professional Studies (CCAPS). Under the current U of M budget model, both of these units are charged with recovering virtually the full costs of instruction.

CSE’s UNITE is a completely self-supporting unit, begun in 1971 to provide graduate engineering classes to employees of local Twin Cities companies. It operated then from specially equipped Twin Cities classrooms, live via Instructional Television Fixed Service (ITFS). In the late 1990s, the service moved to internet delivery (still using video as the main delivery format). The entire cost of the unit and its services still must be fully recovered, and that is achieved via a \$100 per credit fee-- down from \$300/credit in the earlier ITFS era.

The additional fee-based revenue is needed by UNITE to pay for the add-on video classroom equipment, document cameras, white boards, special enrollment/registration and student services staff, on-location exams proctors, technicians, and over 45 student operators who serve students enrolled in the internet-based classes. Eight U of M classrooms are specially equipped with technology for these UNITE courses, with equipment refreshed every few years through funds from the UNITE fee.

The Twin Cities College of Continuing and Professional Studies charges a per credit fee of \$27 and generates \$400,000 in revenue for the college. The fee is used to support a variety of services, including instructional designers and developers who work with instructors as part of the College’s online course production group. The cost of this unit, which focuses solely on online course development, is approximately \$1 million per year; the per credit fees cover roughly 40% of the actual costs and do not

cover any of the additional costs of online student support --for proctoring, learning management system support, student technical support, etc.

Achieving parity in the amount charged for online courses and comparable in-person courses and justification for differences in costs

As noted at the beginning of this report, online education has become an increasingly important element in the University of Minnesota's approach to fulfillment of its teaching mission. The development and delivery of on-line instruction across most University programs has merged with place-based instruction in a variety of complementary ways. Because of this, the U of M does not charge higher tuition for online courses, and most students who are completely online pay approximately the same, sometimes less, for online courses. Additional fees are assessed to students in only five of the U of M academic units, ones where special considerations of flexibility and resource allocations are salient.

On-campus students who encounter slightly higher fees for an online offering may still benefit financially if an additional online enrollment means a shorter time to graduation, which in turn means lower overall college costs and a faster track to good employment. Online courses may give students flexibility to retain their current jobs and/or take care of a family while in school. Moreover, if students are full-time and already taking at least 13 credits, there is no additional tuition charge for taking an additional online course.

The University will, of course, continue to seek ways to provide more cost efficiencies in online learning. We will:

- Continue prudent investments in technologies that serve both online and classroom-based students. The cost of distance education may decline with scale, as the same software and technology are employed for both online learning and classroom-based learning.
- In alignment with the U of M System Strategic Plan, strengthen the ability of central support units to provide high quality services for system campuses and academic units offering online courses and programs. A more centralized support structure for online courses and programs can support higher quality and reduce redundancy.
- Explore the use of "master" online courses across the system, and encourage the development of collaborative online degrees that could be offered via multiple campuses.
- Explore larger scale online program partnerships to determine whether they can supply services at lower cost, as the University supplies content expertise and instructional goals.
- Continue to develop and encourage the use of Open Educational Resources (OER) to reduce the cost of both in-person and online education.
- With our Unizin partners, continue to develop content, learner support, and data analytics that cut costs and enhance student success.

¹ State University System of Florida Board of Governors Affordability Workgroup 2025 Strategic Plan for Online Education. (2016). *The Cost of Online Education Presented to the Innovation and Online Committee Florida Board of Governors October 17, 2016*. Retrieved on 1/15/2020 from https://www.flbog.edu/wp-content/uploads/03a_2016_10_07_FINAL-CONTROL_Cost_Data_Report_rev.pdf