

# Seven Years and Thriving: A Sustainable PSM Program At the University of Utah

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## **Abstract**

The Professional Science Master's degree program at the University of Utah was launched in Fall 2002 with financial support from the Alfred P. Sloan Foundation. From the first class of 10 students, admitted within months of the program approval, the program has grown steadily. We have graduated 59 students, 85 students are currently enrolled in the four tracks (Environmental Science, Computational Science, Science Instrumentation, and Biotechnology), and we are achieving our admission target of 30 new students a year across the four tracks. In terms of financial sustainability, we successfully transitioned from the Sloan foundation funding, but need to take final steps to solidify long-term support within the University and possibly include other industry or foundation support.

The current annual budget for our PSM program is about \$120,000, not very different from the level of Sloan funding. Funds under our current model are required for the following: program personnel compensation, instructor compensation, instructional materials, marketing, participant support and program meetings, travel, and supplies. Students are not included in our budget. Some students receive teaching or research assistantships with a variety of science departments; these assistantships bring both stipend and tuition benefits. Other students are supported by the firms that employ them while they attend the program.

Revenue streams at the University of Utah include: (a) student tuition paid to the program through a student credit hour productivity formula, (b) block grants to the program from University general funds, (c) differential tuition or program fees, (d) industrial consortium fees, and (e) endowment earnings. Our current students will generate about \$40,000 revenue through the productivity formula for courses offered specifically through our PSM program (Transferable Business Skills courses, Advanced Quantitative Skills courses, Internship). Another \$40,000 of productivity funding is created by our students in courses offered by departments throughout campus but that productivity money flows to the departments and not our PSM program; this amount is the basis of an annual \$40,000 block grant from the University to the program. Differential tuition at the University of Utah is levied at the course level and thus not suitable for our PSM students who take courses in 33 departments and programs spread across 12 academic colleges. A better option for us is a modest program fee of \$250 per semester up to a maximum of \$1,000 for the degree; such a fee would raise more than \$40,000 annually with current enrollment and balance our budget. We have shied away from an

internship fee while we are still expanding our internship opportunities and because the financial arrangements for our students during their internships are extremely varied. Fund raising to build a program endowment has not yet been attempted but remains an option, especially when aimed towards student scholarships, as the University enters the public phase of a \$1B capital campaign.

The Professional Science Master's degree program at the University of Utah was launched in Fall, 2002, with financial support for three years from the Alfred P. Sloan Foundation. From the first class of 10 students, admitted within months of the program approval, the program has grown steadily. We have graduated 59 students, 77 students are currently enrolled in four tracks (Computational Science, Environmental Science, Science Instrumentation, and Biotechnology), and we are achieving our admission target of approximately 30 new students a year across the four tracks. For historical and strategic reasons the University of Utah PSM degree is called the Professional Master of Science and Technology degree or MST but the term is used interchangeably with a PSM degree in this article.

In terms of financial sustainability, we successfully transitioned from the Sloan Foundation funding, but need to take final steps to solidify long-term support within the University and possibly include other industry or foundation support. We are also facing decisions about the ultimate size of the program and the level of student support systems we might offer, both of which have financial implications.

The annual expenses for our MST program are about \$135,000, not very different from the level of Sloan Foundation funding. Funds under our current model are required for the following (see Figure 1): program personnel compensation, instructor compensation, advertising, marketing, instructional materials, participant support, and program meetings, travel, and supplies. Staff personnel and instructor compensation make up 92 percent of the annual expenses. The paid

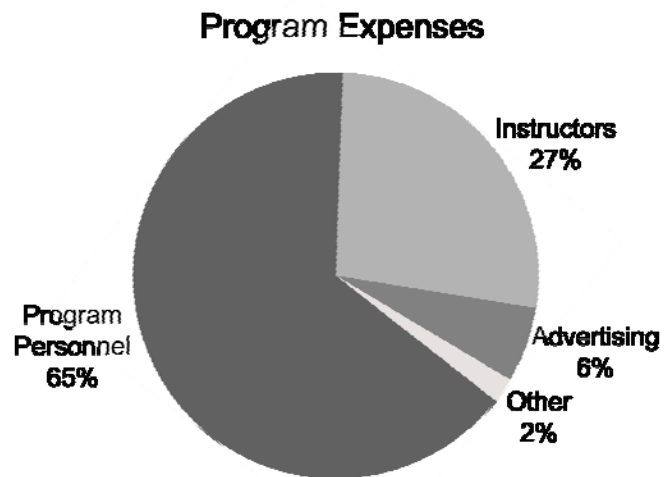


Figure 1. Program expense categories and percentages for the University of Utah professional science masters program.

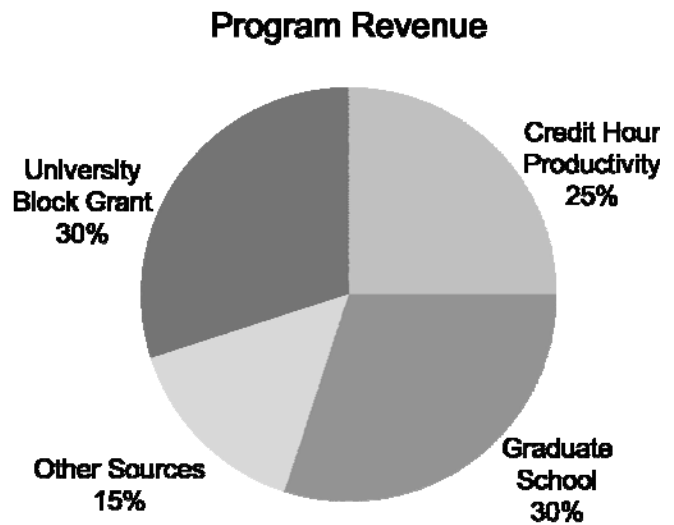
program staff includes a single director for the four tracks and a 3/4-time coordinator who assists the director with admissions, student tracking, and internship administration. Each track in our MST program has one or two faculty track directors but these faculty members are paid by their departments and devote time to the MST activities as part of their overall academic responsibilities. The program pays the instructional costs for MST cohort courses (12 credit hours out of the 36 credit hour degree); instructional costs for other courses are borne by the departments in which the remainder of our courses is taught, but these departments also receive tuition-based financial credit for that teaching. Only 8 percent of our annual budget is devoted to marketing, materials, and travel.

Students are not included in the expenses category. Student support was officially excluded in the Sloan Foundation PSM grants. Some students, however, receive teaching or research assistantships within a variety of science

departments; these assistantships include both stipend and tuition benefits. In addition, forty three percent of our current first-year students (12 out of 28) have their tuition and fees paid by the firms that employ them while they attend the program.

In general, revenue streams at the University of Utah for programs such as the MST include: (a) student tuition paid to the program through a student credit hour productivity formula, (b) block grants to the program from university general funds, (c) subsidies from a College (or Graduate School), (d) differential tuition or program fees, (e) industrial consortium fees, and (f) endowment earnings. Currently, we derive revenue from the first three of these streams (see Figure 2). We anticipate that moving from a surviving mode to thriving mode of sustainability will most likely entail instituting a program fee.

Our current students generate about \$35,000 revenue through the productivity formula for courses offered specifically through our MST program (6 credit hours Transferable Business Skills courses, 6 credit hours Advanced Quantitative Skills courses, 3 credit hours Internship). Another \$40,000 of productivity funding is generated by our students through the courses they take within various departments throughout campus, but that productivity money flows to the departments and not to our MST program. This amount is the basis of an annual \$40,000 block grant from the University to the program. We track and are able to provide the administration with the credit hours that are accrued by our MST students throughout their enrollment and thus are able to justify the block grant. The Graduate School, which initiated the MST program through the Sloan Foundation grant, has been subsidizing or arranging for the remainder of the budget. Our immediate objective is to develop alternatives to replace the Graduate School subsidy and contributions.



**Figure 2.** Program revenue categories and percentages for the University of Utah professional science masters program.

We have shied away from the model of an internship whereby the placement company pays the university for the privilege of hosting our students. Our internships are project based, student developed, and supervised by a university committee. The financial arrangements for our students during their internships are extremely varied. Many of our students are employed full time and complete their internships at their current place of employment, although in a different division. Our objective for students to identify a project that is most suitable for his or her career goals may not interface well with a model whereby companies pay the University for hosting students as interns. Further, we do not want to erect financial barriers that might prevent companies from offering internship sites, especially as our program size requires that students must secure about 30 internships per year.

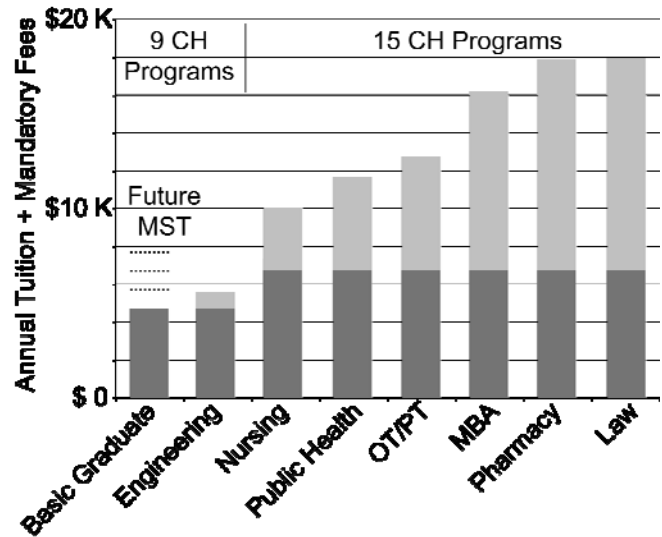
Fund raising to build a program endowment has not yet been attempted but remains an option, especially when aimed towards student scholarships, as the University enters the public phase of a \$1B capital campaign. The unique interdisciplinary and professional aspects of the

MST program provide compelling arguments for a secure source of funding.

Differential tuition at the University of Utah is levied at the course level and thus not suitable for our MST students who take courses in 33 departments and programs spread across 12 academic colleges. A better option for us is a modest program fee of \$500 per semester, \$1,000 per year, for all students admitted into the MST degree program up to a maximum of \$2,000 for the degree; such a fee would raise about \$60,000 annually with current enrollment and balance our budget. Greater program fees would raise progressively more revenue.

Program fees and differential tuition are growing in popularity among our academic programs as state funding dwindles. All revenue derived from differential tuition remains entirely within the academic unit that establishes the higher tuition rate. Basic graduate student tuition for a Utah resident in 2009-10, for 9 credit hours (normal full time) is \$4,704 annually and for 15 credit hours is \$6,762. Non-resident tuition is about three times more expensive. Whereas the State Board of Regents limits regular master’s degrees to 36 credit hours, exceptions are made when professional accreditation is involved; several of these programs require 60 or more credit hours for the two year professional degree and thus 15 hours or more of registration per semester.

Figure 3 shows that revenues derived from differential tuition can be substantial. For example, resident tuition for many professional programs requiring 15 credit hours per semester is between \$10,000 and \$18,000 annually, considerably more than the \$6,762 basic university tuition for 15 credit hours. These programs keep between 33 percent (Nursing) and 62 percent (Pharmacy and Law) of the tuition and fees charged to students. The respective dollar amounts are approximately \$3,300 and about



**Figure 3.** Annual (two semester) resident tuition plus fees in 2009-10 for selected University of Utah graduate programs. Dark grey indicates basic graduate tuition and fees for 9 credit hours registration (MST Basic Graduate, Engineering) or 15 credit hours registration (others). Light grey shows differential tuition and fees distributed directly to the programs. Dashed lines in the “basic graduate” column show \$1,000 increments in a program fee being considered for the MST program in the future. With an enrollment of 60 students, each \$1,000 increase in differential tuition or program fee would raise \$60,000 annually for the MST program.

\$11,000 per student per year for the programs. The College of Engineering has the most modest of differential tuition programs shown in Figure 3. Initiated in 2009, the new tuition structure requires graduate students in Engineering to pay an additional \$900 per year. Three hypothetical levels for a future annual MST program fee of \$1,000, \$2,000, and \$3,000 are also shown in Figure 3. Such fees would bring the tuition and fee level for the MST to \$5,704, \$6,704, and \$7,704, still far below other comparable professional programs.

The three levels of fees being considered would raise \$60,000, \$120,000, and \$180,000 annually for the program. The first level would enable us to meet our current budget needs and release the Graduate School from financial assistance obligations. However, our program would benefit greatly from resources beyond our current

financial level of support. Additional financial resources would allow us to move beyond our current and limited infrastructure to support and enhance the quality of our program. Such resources would ensure that we continue to provide high quality instruction and program operations by enabling us to provide competitive compensation rates. Track-specific leadership and academic advising would be enhanced. Additional instruction and guidance would be provided throughout the internship process to increase the already valuable opportunity the internship presents. Educational objectives would be furthered by providing additional writing instruction, along with multiple reviews and editing of internship proposals and reports. Additional program personnel would be added to enable the program to develop extended industry relations. Financial support for our students would also be considered including travel grants and other awards related to the student's program of study. Lastly, we are considering the possibility of expanding our capacity to enable us to admit a greater number of students while maintaining and

enhancing the quality of the program. Our vision is to provide the highest quality education for our students and ultimately their employers and the community that benefits from the valuable education our students receive.

The University of Utah case history shows that an annual funding level of about \$140,000 is necessary for "surviving mode" financial sustainability in a professional science masters program with four tracks and about 60 students. Programs with a less centralized administration may push some costs out to participating departments, although total costs could rise if infrastructure costs in departments is higher than our Graduate School. At the University of Utah, other professional masters and professional doctorate programs charge much higher tuition and fees than is charged for our MST program. Potential funding from differential tuition or a program fee offers the most direct route to move from "survival mode" to "thriving mode" of operation. Diversifying resources would further strengthen and ensure financial sustainability.