

Chapter 1

Students

1.1 Recruitment and Entry and Diversity of Students

Undergraduate students enter the University of Washington in a pre-major status. They are eligible to apply to the department for early admission if their GPA is over 2.5, and if they have completed certain required course; otherwise they apply at the end of their sophomore year. The general guidelines for evaluating the quality of the students include:

- Student grade point average (GPA). Students must have a minimum 2.0 GPA in core required courses (mathematics, chemistry, physics, engineering fundamentals and introductory English composition course) and an overall GPA of 2.5 or higher.
- The overall academic record of the student, and
- Motivational factors as evidenced by previous work experience, a written statement or other evidence.

Community College transfer students may be admitted directly into the department provided that they meet the criteria above and are competitive academically.

Over the past few years, 70 to 80 students have applied to MSE, either to Metallurgical Engineering or Ceramic Engineering. Students can apply to multiple departments, with applications accepted for both Spring and Fall quarters. From our applicants, about 60 to 70 offers are usually made and these are accepted by about 30 to 40 students per year. Students admitted for Spring quarter wait until Fall to take their major courses, but receive advising in the Department and can take our sophomore seminar course. Special admission considerations may be given for disadvantaged students. Specific admissions data are given in Table A. Specific admissions data for Metallurgical Engineering is not available.

Graduation data for Metallurgical Engineering and for Ceramic Engineering is given in Table B. It should be noted that some students take additional time to graduate, thus there is not a specific correlation between one year's admissions and the next year's graduation statistics.

With our new unified MSE curriculum, and with our new combined BS/MS program, we expect to see our student application numbers increase. The former offers students a broader program better in line with industry needs and with student interests. The latter offers a more efficient, direct path to the MS degree (with no change in the BS or MS requirements), which is of interest to many of the better students. While we do not anticipate significantly increasing the number of majors beyond the current combined 30-40 per year as a result of these programs, we expect that these program will lead to an increase in quality of our students.

Table A: Undergraduate Admissions Data for Metallurgical Engineering and Ceramic Engineering (combined)

UG Admission Data for UW Materials Science and Engineering	Aut-1996	Spr-1997	Aut-1997	Spr-1998	Aut-1998	Spr-1999	Aut-1999	Spr-2000	Aut-2000
Total Number of Applications	67	20	51	24	42	19	59	18	54
Offers Extended	64	20	48	20	42	16	59	18	52
Accepted*	40	6	22	8	22	9	25	11	32
% of Students who accepted	63%	30%	45.8%	40%	52%	56%	42%	61%	62%
Cumulative GPA of Applicants	3.00	3.16	3.05	2.83	2.98	2.93	3.05	3.06	2.99
Cumulative GPA of Offers	2.88	3.16	3.11	2.90	2.99	3.04	3.05	3.06	3.02
Cumulative GPA of Acceptances	2.92	3.07	2.97	2.81	2.92	3.07	2.86	2.99	2.88

* Accepted refers to the actual number of students who enrolled.

Table B: Graduation Data for Metallurgical Engineering and Ceramic Engineering Programs

UG Degrees Awarded Data for UW Materials Science and Engineering	Aut 1996 - Sum 1997	Aut 1997 - Sum 1998	Aut 1998 - Sum 1999	Aut 1999 - Sum 2000	Aut 2000 - Sum 2001*
BS MetE	5	6	12	23	19
BS CerE	17	18	20	15	13

* Estimated, as of May 2000

Student recruitment is accomplished in several ways. Most students are unfamiliar with materials as a field of study when they enter the University. Our introductory course, MSE 170, is the primary means by which students learn about the field, and a number of students cite their experience in 170 as the reason they have chosen MSE. We also provide programs for earlier levels. One of these is our highly successful teacher training program, where teachers are trained to teach a Materials Science and Technology (MST) curriculum in middle and high schools. Over 30 high schools in Washington State teach a MST course at present. In addition, our student societies visit classrooms and give motivational presentations on materials as a field of study. The department also participates actively in our annual Engineering Open House, which targets students in grades 6 – 12. These efforts have increased the numbers of students with some prior understanding of materials and have assisted the department in increasing student quality and the numbers of students who apply.

The department takes considerable pride in being able to recruit and retain a diverse group of students. A number of national studies have indicated the crucial need to focus on the training of women and underrepresented minorities in engineering to address the future technical workforce needs of the country. In addition, our recruiters have consistently given us the message that they desire a diverse work force. As a result, we have aligned some of our recruitment efforts with programs focused on enhancing the diversity (ethnic, gender and people with disabilities) of students in science and engineering. The University of Washington is a leader nationally in such programs. In particular, we have worked closely with Math, Engineering and Science Achievement (MESA), Women in Science and Engineering (WiSE), The Minority Science and Engineering Program (MSEP) and the Disabilities, Opportunity, Internetworking and Technology (DO-IT). Three of these programs (MESA, WiSE and DO-IT) have received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring.

In reference to efforts made by the Department to enhance diversity, the Academic Counselor has worked with the MSEP Office and the Society of Black Engineers by providing presentations to minority students about the field of materials science and engineering and provided them general information about the Department. In addition, the Counselor identifies scholarships for minority students and helps them with the application process including writing letters of recommendation. The Academic Counselor refers female students to the WiSE Center on campus to receive tutoring and academic support and works closely with them to recruit students.

A measurable result of these interactions is that our student body is highly diverse. During 1999-2000, 29 % of our undergraduate degrees were awarded to women (College average was 23.7 % and the national average is 18.6 %, from 1998 data, latest available). Currently, 15 % of our undergraduate students are underrepresented minorities.

1.2 Student Evaluation

Once admitted, students are evaluated using grades in courses, participation in research and development projects with faculty and graduate students, and participation in co-op or internship programs. The course grades are a measure of their performance in that course. The basis for the grades differs from course to course. Typical evaluated work includes homework, midterm and final exams, laboratory reports, term papers and oral presentations.

1.3 Student Advising and Monitoring of Their Progress

The department maintains an advising Planbook for its degree programs. These books are provided to the student upon entry and kept up to date by our academic counselor. The Planbook information is available on the internet at <http://depts.washington.edu/mse/education/undergraduate/ugradgprogram.htm>.

The student may graduate using the specific requirements in the Planbook in effect when they enter, or under the requirements in existence at their graduation date.

Students are advised in a two-tiered system. An academic counselor monitors student progress and advises students on an individual basis in terms of specific academic needs and requirements. This counselor position was put in place in 1999 as a result of student input indicating difficulty in getting appointments to see their faculty advisor, and a lack of knowledge of some registration details by faculty members. The Academic Counselor plays a crucial role in the advising and monitoring of students. In some cases, the Counselor is the primary person through which the students interact with the department. The Counselor is both an advisor and an advocate for the students. She is a member of the Department Undergraduate Committee. Specific responsibilities include:

- monitoring and tracking of student progress towards their degree
- advising students about choice of electives
- resolving and advising time conflict issues
- advising about double majors and minors requirements
- advising students about scholarships and helping them with scholarship applications
- preparing summary data for the applicants (for the Undergraduate Admissions Committee)
- ensuring that students meet graduation requirements
- helping students with graduate school applications
- coordinating with recruiters
- keeping track of students on Academic Probation (GPA < 2.0).

Each student also has a faculty member as advisor for advise regarding general academic and career goals and on specific courses to take to meet these specific goals. The students have the same advisor for the entire course of their studies. The faculty advisor's primary responsibilities are to advise students regarding career issues, choice of graduate schools, helping with the choice of electives (based on needs and career goals) and advise regarding double degree and minors. This faculty contact is an essential complement to the advice provided by the Academic Counselor.

Additional advising takes place in certain courses. MSE 300, the introductory course, includes discussions of the general curriculum, pre-requisites and course sequences. Also included are discussions of career fields and courses appropriate for developing background in those areas. Advising and career guidance also takes place in the senior seminar, MSE 442.

Courses in the academic program are designed to meet the specific academic program objectives of the department. Students who complete satisfactorily the full set of required and elective courses will have met the departmental academic program objectives. To ensure that this is the case, the department conducts a variety of interviews and surveys of students, the results of which are fed back into program planning and development. These include student course evaluations, focus group discussions, exit interviews and surveys of recent graduates. Details are discussed in Section 3.

The Academic Counselor also tracks student progress, and notifies the faculty and the student when special recognition should be provided (such as the honors program) or when academic probation is recommended.

1.4 Student Awards and Recognition

The department pays special attention to recognize the achievements of the students. The faculty advisor and the academic counselor work with the students in helping them identify appropriate Fellowships and Scholarships to apply for and actively nominate students for awards and honors. As a result of this, a significant number of the students from the Department receive them. The Department recognizes the students who have received these awards in several different ways. These include a congratulatory e-mail from the Chair, announcement at the faculty meetings, listing in the Department newsletter, announcement at the Department Graduation Ceremonies, and announcement at the annual Faculty and Staff Retreats. At the time of the visit, the committee will have access to the list of the students who have won different awards in the recent years. In addition to the external awards, several Departmental awards recognize the academic achievement and leadership potential of the students.

These awards are:

- William E. Quist Award for Outstanding Senior in Metallurgical Engineering
- Richard L. Norris Award for Outstanding Senior in Ceramic Engineering
- Stephen P. Harris award to a Senior in Ceramic Engineering for the greatest improvement in GPA over the past five quarters
- James I. Mueller Scholarship to a Ceramic Engineering Junior for Outstanding Leadership and Academic Performance during the Junior year
- ASM Puget Sound Chapter award to a Junior for Outstanding Leadership and Academic Performance (started in the year 2001)

Candidates for these awards are identified by the Academic Counselor and the Undergraduate Committee. The award recipients are elected by the full faculty at a faculty meeting in the Spring quarter of every year.

1.5 Career Placement

Student career placement is assisted by the faculty in terms of identifying available positions through their professional contacts. The department also maintains placement information and posts advertisements of specific job openings, and maintains a full listing of materials-related companies in the State. The Academic Counselor is the focal point of placement information, coordinating visits by recruiters and working with the University Career Services in developing workshops and training sessions for the students. Annual resume books are produced and distributed to companies interested in students for co-op, internship and permanent positions. A copy of the latest resume book will be available for review at the time of the visit.

Career placement is also discussed in several courses (MSE 300, MSE 399 and MSE 442). In the senior seminar, MSE 442 the students are asked to register at the University of Washington Center for Career Services. Our recent experience is that despite these prompts, many student delay their job search until just before they graduate, which compromises their chances of getting a good job. In addition, many students indicate that they do not want to leave the Puget Sound area, and take jobs in which they become underemployed. This trend is evident from exit and alumni surveys and has become serious. We are planning a new seminar series for seniors to focus on career placement to try to alleviate this problem.