

## Engineering Dual Degree Program Application Guidelines and Information

This supplements the information available on the engineering website:

<http://www.mtholyoke.edu/acad/engineering/>.

### Participating Institutions:

Dartmouth College, Thayer School of Engineering

California Institute of Technology (Caltech)

University of Massachusetts Amherst (UMass)

Note that the Thayer and UMass programs (in chemical, civil, mechanical, and industrial) are normally 2-1-1-1 programs in which the student spends her third and fifth years at the dual degree institution, but electrical and computer engineering at UMass and the Caltech program are 3-2 programs in which the student spends her fourth and fifth years at the dual degree institution. Special arrangements can be made to do the Thayer and other UMass programs on a 3-2 schedule, but on *any* schedule, the internal MHC application must be completed in the sophomore year. Instructions below are written for the 2-1-1-1 schedule for Thayer and UMass.

Thayer and Caltech confer the Bachelor of Science in Engineering. In these programs, students choose an engineering major, but the degree itself is relatively broad. Most people who earn this degree either go into management or on to graduate study. UMass Amherst confers the Bachelor of Science in a specific area of engineering. It requires, therefore, more specific courses throughout the five years. This more specialized degree is ideal preparation for someone who wants to be a working engineer "in the trenches"; it is also solid preparation for graduate study or management.

### Steps for Applying to All MHC Dual Degree Programs in Engineering

- ***During her first semester*** at the College, the student consults with a member of the MHC Engineering Committee. Currently this committee includes Professors Paul Dobosh (Computer Science), Wei Chen (Chemistry, replaced by Maria Gomez in 2010-2011), Kathy Aidala (Physics, replaced by Mark Peterson in 2009-2010), Thomas Millette (Geology and Geography), and Harriet Pollatsek (Mathematics and Statistics). *Some UMass programs require taking a course there on the Five College Exchange in the spring of the first year. All interested students are encouraged to take an introductory engineering course via Five College Exchange in the spring of the first year.*
- In the fall of her sophomore year, the student ***declares her MHC major***, so that planning for the major can be coordinated with planning for the dual degree. The student must declare her departmental major (or her intention to design a special major) ***before*** submitting the MHC Application for a Dual Degree in Engineering (see below). An advisor for her major must sign the MHC Application.
- **Every** dual degree student must complete the MHC Application for a Dual Degree in Engineering along with a statement explaining how the proposed work in engineering fits into her Mount Holyoke major and her long-term plans. This MHC Application form is available online and in the Office of the Dean of the College, 202 Mary Lyon Hall. Students must complete this form and return it to the Dean of the College's office no later than **December 1 of the sophomore year**. ***Note that this form constitutes the application for an MHC Engineering Scholarship for study at the dual degree partner institution*** for students receiving need-based

aid from Mount Holyoke. A student applying for the dual degree at UMass, whether as a first or a second choice, must also complete and attach the MHC/UMass Engineering Dual Degree Program form (see below).

- Mount Holyoke seeks to maximize the number of students it can support with Engineering Scholarships. When making awards the College will therefore consider the costs of the options available to a student. An applicant will increase her chance of receiving a Scholarship meeting full financial need if she includes the UMass program among her choices; *funding meeting full need is not guaranteed for Scholarship recipients attending Dartmouth. The maximum Dartmouth award is capped at the maximum required for the UMass program.*
- Applicants must have a grade point average of at least 3.0 in mathematics and science courses and at least 3.0 overall. These are *minimum* requirements, and successful students usually have stronger records in mathematics and science.
- A student earning a dual degree in engineering in any of the three MHC programs must complete an MHC major in a department or an interdisciplinary (special) major, and all MHC graduation requirements, by the end of year four. In consultation with her MHC advisor, a student with a departmental major may design a special minor in Applied Science that includes engineering courses taken at the partner institution.

### **Additional Steps for Applying to UMass**

- ***Advising is essential in the first year.*** A student interested in applying to the MHC/UMass engineering program will be put in touch with UMass, where she will be assigned a UMass advisor.
- For advising purposes in the first two years, and to formalize her commitment in the third (or fourth) year, the student is required to complete the internal MHC/UMass Engineering Dual Degree Program form outlining a proposed five year course of study plan. The form is available online and in the Dean of the College's Office, 202 Mary Lyon Hall. Ideally, the form should be completed in the ***first year***; it must be completed by ***December 1 of the sophomore year***. After being completed by the student and signed by her MHC engineering advisor, her MHC major adviser, her UMass engineering advisor, and the UMass Engineering Program Coordinator, the application should be attached to the MHC Application for a Dual Degree in Engineering.
- ***Choosing courses:*** Course requirements vary with the engineering major; careful planning from the first semester is essential. Please see the sample programs on line at [http://www.mtholyoke.edu/acad/engineering/sample\\_programs.html](http://www.mtholyoke.edu/acad/engineering/sample_programs.html) and then consult with MHC and UMass advisors. Some engineering majors require taking a UMass course in the first year at MHC. All engineering majors require taking mathematics and physical science (physics or chemistry) each semester of the first year. A student who satisfies the MHC distribution requirements will be deemed by UMass to have satisfied the UMass general education requirements. A minimum of 45 UMass engineering credits in residence is required for the engineering degree from UMass. *Each student should meet with her UMass adviser during the April advising period before each of the years in which she takes a full program of courses at UMass.*
- ***Housing:*** An applicant should contact Kathy Rubin (545-4757 or via e-mail at [rubin@ecs.umass.edu](mailto:rubin@ecs.umass.edu)), Assistant Dean for Outreach at the College of Engineering at UMass,

no later than March of her sophomore year to arrange on-campus housing at UMass for her junior year (i.e., her first UMass year). Mount Holyoke covers the cost of a double room and the unlimited meal plan for 9 months. (Students are eligible for MHC housing during the break between the fall and spring terms.) The student should be aware that on-campus housing is not guaranteed in year five, although it may be available on a case-by-case basis.

### **General MHC-UMass Engineering Program Information:**

The student will be enrolled at Mount Holyoke for the first four years and will pay regular MHC tuition, room, board and other fees, less any financial aid.

During year three (or four on the 3-2 plan), the student must be in residence at UMass. For this first year at UMass, she registers for all her courses through Mount Holyoke (not directly through UMass), using the usual registration procedures for Five-College Course Registration.

MHC financial aid is not automatic for dual degree engineering students at UMass; MHC Engineering Scholarships are available to highly qualified students on a competitive basis, using the MHC Application for a Dual Degree in Engineering, available in the Dean of the College's office (see above).

**Health insurance and health services:** There is a mandatory UMass Health Services fee, currently assessed at approximately \$320 per semester. The UMass Health Services fee will be covered by Mount Holyoke *for the first UMass year only*. In addition, a student must have adequate supplemental health insurance. In year three, the student will be billed for Mount Holyoke student supplemental health insurance, which can be waived if she has comparable coverage. (Details about procedures and coverage for MHC students in residence at UMass by the Mount Holyoke student supplemental health insurance are in a separate document.) In year five, UMass will bill the student for both the UMass Health Services fee and supplemental health insurance (which can be waived if she has comparable coverage). MHC does not cover either the health fee or the health insurance cost in year five. Questions about health insurance coverage should be directed to Student Financial Services at MHC.

**Preparation for the fifth year:** There are three things to do during the fourth year in preparation for year five at UMass; note that the first of the deadlines below is January 22.

(1) You must complete a Post-Graduate application to the UMass College of Engineering (can be obtained from Greg Brown in Marston 126 or UMass University Admissions Office). This application is due April 1 for the following fall. Dean Rubin works closely with MHC students and the Engineering Admissions office to coordinate this process. Note that, because of tightened visa requirements, international students will need to document their ability to cover their *expenses in the fifth year that are not covered by MHC: room, board and health insurance*.

(2) If you seek additional funding for year five, apply for a College of Engineering scholarship. The application is available online at <http://www.ecs.umass.edu/scholarships>. It is due February 5 for the following fall.

(3) You can make your fifth year much more affordable by applying for a position in the UMass residence halls to cover the cost of housing in year five. The application is due January 22 for the following academic year. The application form and information are at [http://www.housing.umass.edu/employ/ra\\_selection.htm#dates](http://www.housing.umass.edu/employ/ra_selection.htm#dates)

### **Additional Steps for Applying to Thayer School of Engineering at Dartmouth**

- Apply directly to Thayer by February 1 of the sophomore year. Applications are available in the Dean of the College's office or at <http://engineering.dartmouth.edu>.
- After approval of your MHC dual degree application, complete an MHC application for Academic Leave of Absence for US study by March 1 of the sophomore year. The form can be found online at [http://www.mtholyoke.edu/offices/reg/assets/Registrar/app\\_acad\\_leave.pdf](http://www.mtholyoke.edu/offices/reg/assets/Registrar/app_acad_leave.pdf). Filing his form does not oblige you to take the leave of absence; in fact, the March 1 deadline is normally before Thayer notifies students about whether they have been accepted.
- **Financial aid:** In support of year three, the student can apply for the (competitive) MHC Engineering Scholarship using the MHC Application for a Dual Degree in Engineering, available online and in the Dean of the College's office (see above). Recall that *funding meeting full need is not guaranteed for Scholarship recipients attending Dartmouth*. There is no aid from Thayer for dual degree students in year three. In year five, there is limited financial aid available through Thayer.
- **Choosing courses:** In the first two years at MHC the student should take mathematics through multivariable calculus (MATH 203) and linear algebra (MATH 211), 2 semesters of calculus-based physics covering mechanics and electromagnetism (PHYS 115-216), one course in general chemistry (CHEM 101), and one course in computer science (COMPS 101). Students interested in biotechnology or biochemical engineering should also take biology (BIO 150). Students interested in chemical engineering should take one year of general chemistry (CHEM 101-201) and one year of organic chemistry (CHEM 202-302). Students intending computer engineering should take data structures (CS211f).

### **Additional Steps for Applying to Caltech**

- Complete an MHC application for Academic Leave of Absence for US study by March 1 of the junior year. The form can be found online at [http://www.mtholyoke.edu/offices/reg/assets/Registrar/app\\_acad\\_leave.pdf](http://www.mtholyoke.edu/offices/reg/assets/Registrar/app_acad_leave.pdf). (The Caltech dual degree program is 3-2 only.)
- Apply directly to Caltech by April 1 of the junior year. Applications are available online at <http://admissions.caltech.edu/admissions/3-2>. A cautionary note: in recent years, the total number of dual degree students that Caltech admits has been very small.
- The Caltech catalog states that students applying to their dual degree program “should have a record of superior academic achievement at their home institutions and strong letters of recommendation from their 3/2 liaison and an additional faculty member.” The Caltech 3/2 liaison at Mount Holyoke is Janice Hudgings (physics). We understand “superior” to mean: A's and B's in mathematics and science courses, with more As than Bs.
- **Financial aid:** For US citizens and permanent residents, Caltech is committed to meeting the full demonstrated financial need of admitted students. *However, financial aid is not available for*

*international students.* Because MHC funds are too limited to support two years of study away from MHC, the MHC Engineering Scholarship is not available for Caltech.

- ***Choosing courses:*** In the three years at MHC the student should have completed a minimum of one year of calculus-based physics (PHYS 115-216) and mathematics (two years are recommended) including multivariable calculus (MATH 203) and differential equations (MATH 333), and one year of chemistry (CHEM 101-201). Students interested in chemical engineering should also take one year of organic chemistry (CHEM 202-302). All Caltech engineering options are open to dual degree students.