

# **BSE Chemical Engineering / MS or MSE in Macromolecular Science and Engineering**

## **SGUS Program**

The SGUS program is an integrated program that facilitates the completion of a master's degree with two semesters of study beyond that required for the bachelor's degree. Up to nine hours of required course work can be double counted within the combined program. These will typically include the six credits of technical elective, and either free elective credits or the biology/life science elective.

The general requirements for all Macromolecular Science and Engineering Masters programs is 30 credit hours; 12 of these from Macromolecular Science and Engineering courses and 12 more from specialization courses, and 6 hours of graduate credit. There are several specializations or options from which to choose: Biomaterials Engineering, Biomedical Engineering, (Organic or Physical) Chemistry, Chemical Engineering, Materials Science and Engineering, and Physics.

It is recommended that in all the options an introductory course such as MacroSE 412 / MSE 412 be taken as part of these credits by all students who do not have a strong polymer background.

### **Biomaterials Engineering Option**

A minimum of 30 hours of course work. This must include a minimum of 12 hours from Biomaterials Engineering and 12 hours from Macromolecular Science. These courses must include a graduate course in biomaterials, biochemistry and biophysics.

### **Biomedical Engineering Option**

A minimum of 30 hours of course work. This must include a minimum of 12 hours from Biomedical Engineering and 12 hours from Macromolecular Science. These courses must include a graduate course in biomaterials, biochemistry and/or biophysics and biomedical engineering.

### **Chemistry Option (Organic or Physical)**

A minimum of 30 hours of course work from Chemistry and Macromolecular Science Courses. This must include a minimum of 12 hours from Chemistry and 12 hours from MMS.

For an Organic option, these courses must include: MMS 790, MMS 800, MMS 535, MMS 536, MMS 538, Chem 540, Chem 541, Chem 542.

For a Physical option, these courses must include: MMS 790, MMS 800, MMS 535, MMS 536, Chem 580 and another approved Chemistry course.

### **Chemical Engineering Option**

A minimum of 30 hours of course work from Chemical Engineering and Macromolecular Science courses. This must include a minimum of 12 hours from ChE and 12 hours from Macromolecular Science. These courses must include: MMS 790, MMS 800, MMS 535, MMS 536, ChE 528, graduate courses in transport phenomena, numerical methods or mathematical modeling and polymer processing.

### **Materials Science and Engineering Option**

A minimum of 30 hours of course work from Materials Science and Engineering and Macromolecular Science courses. This must include a minimum of 12 hours from MSE and 12 hours from MMS. These courses must include: MMS 790, MMS 800, MMS 535, MMS 536, a graduate course in metals and a graduate course in ceramics.

### **Physics Option**

A minimum of 30 hours of course work from Physics and Macromolecular Science courses. This must include a minimum of 12 hours from Physics and 12 hours from MMS. These courses must include: MMS 790, MMS 800, MMS 536, Phys 506, Phys 507, and an advanced course in physical properties of polymers.

### **Application information**

To officially enter the SGUS program a chemical engineering student must have a minimum of 85+ hours at the time of entry, and a 3.2 GPA. Students considering this program should make an appointment with Ms. Nonna Hamilton, Macro coordinator, to discuss this program and ensure that it is a good fit with their career goals and plans. The application is submitted to the Rackham Graduate School. The statement of purpose and three letters of recommendation should be submitted directly to the Macromolecular Science and Engineering program. General Record Exam (GRE) scores are not required. Your application will be reviewed by Macromolecular Science and Engineering faculty. The application deadlines are:

To begin SGUS in fall term -

U.S. & Canadian students apply by July 1, International students apply by June 1

To begin SGUS in winter term -

U.S. & Canadian students apply by Nov. 1, International students apply by October 1

SGUS students must enroll in Rackham for two at least two full terms, paying Rackham tuition. Normally, this will be the final two terms of enrollment in the five-year program.

### **CONTACTS**

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