

DEPARTMENT OF ENGINEERING  
SCIENCE AND MECHANICS

INTEGRATED UNDERGRADUATE-GRADUATE  
PROGRAM GUIDE

B.S. ENGINEERING SCIENCE-M.S. ENGINEERING MECHANICS

## **I. INTEGRATED UNDERGRADUATE/GRADUATE STUDY – B.S. ENGINEERING SCIENCE-M.S. ENGINEERING MECHANICS**

### **Introduction**

Engineering Science students, because of the flexibility of the curriculum and their strength in fundamentals, have a unique opportunity to take advantage of the ESM Integrated Undergraduate Graduate (IUG) program. Application for IUG status may be made in the fifth or subsequent semesters.

IUG status permits students to take on the rigors and research challenges of graduate study at Penn State, coordinating and combining them with their baccalaureate studies. Because some credits earned as an undergraduate may be applied to both degree programs, the time required for completion of integrated undergraduate/graduate studies is normally less than that required to complete separate degree programs. The actual time required is determined by the individual student's objectives, needs, and diligence. In no case, however, should the acceleration of work in the major be at the expense of the richest possible undergraduate experience; there must be a balance between the accelerated specialization and a sound general education.

The advantages of Integrated Undergraduate/Graduate Status are several:

- 1) It permits coherent planning of studies through the graduate degree, with advising informed by not only the requirements of the baccalaureate program, but also the longer-range goals of the graduate degree.
- 2) For most students, the total time required to reach completion of the higher degree will be shortened. In particular, IUG students may count up to 12 credits towards both their B.S. and M.S. degree requirements.
- 3) The student will have earlier contact with the rigors of graduate study with graduate faculty; the resources of the Graduate School are accessible to IUG students.
- 4) While still undergraduates, students with IUG status benefit from their association with graduate students whose level of work and whose intensity of interest and commitment parallel their own.

IUG arrangements have been designed for the truly extraordinary students, those who have exceptional academic records; whose progress in the major is so advanced that they would be taking graduate courses in later semesters even without IUG status; whose general education progress and plans indicate a readiness to forge ahead with specialization; and who are ready, indeed eager, for that particular challenge of graduate work, advancing knowledge. Engineering Science students who believe they are among such scholars are encouraged to apply for Integrated Undergraduate/Graduate status.

### **IGU Application Procedures and Guidelines**

1. IUG proposals may be filed by Engineering Science students holding at least fifth semester standing with a GPA of 3.4 or better.

2. The application for IUG status consists of the following materials, all of which should be submitted to the ESM IUG Selection Committee through the ESM Undergraduate Officer in 212 EES Building.
- a) A nomination from the head or graduate officer of the ESM department.
  - b) A personal statement that summarizes the student's academic progress, outlines long-term goals, states the proposed use of IUG status, and addresses in moderate detail the research area that will constitute the focus of the graduate degree.
  - c) An explicit plan of study leading to the graduate degree (form available in the ESM departmental office) signed by the Honors adviser. NOTE: As many as 12 of the credits required for the master's degree may be applied to both undergraduate and graduate degree programs. A minimum of 50 percent of the courses proposed to count for both degrees must be at the 500 level. Thesis credits may not be double counted.
  - d) Three faculty recommendations including one from the Honors adviser and one from the prospective research mentor for the master's program or a faculty member expert in the proposed area of graduate research concentration. The latter must address the details of the proposed area of research focus and assess the student's ability to conclude the program.
  - e) A transcript.
  - f) A completed Graduate School application form. GRE scores need not be submitted.
  - g) The *Expedited IUG Application* at the back of this guide (if the applicant is also a Schreyer Honors Scholar).
  - h) A financial plan. The applicant and the prospective research mentor for the master's program must submit a financial plan for funding the applicant for the period between the conferral of the bachelor's and the master's degrees.. The financial plan must address the payment of tuition and fees as well as a monthly stipend for living expenses and health insurance, in accordance with the prevailing rules of the Graduate School. (Visit <http://gradsch.psu.edu/current/funding.html> for funding modes and <http://tuition.psu.edu/CostEstimate.asp> for estimated tuition and fees.) The applicant can be self-funded, or funded through external scholarships, or funded through a research assistantship by the prospective research mentor. An applicant who is not offered a research assistantship, fellowship, or external scholarship will be eligible for a teaching assistantship from the ESM department, subject to availability of funds.

When all materials have been submitted, the applicant should schedule an interview with the ESM Undergraduate and Graduate Officers to discuss her or his IUG proposal.

After this interview, an evaluation of the application is made by the ESM IUG Advisory committee. The committee will look for (a) an undergraduate record which is superior, even among Engineering Science students; (b) evidence of accelerated progress in the major toward graduate study; (c) an indication of how the student compares with other applicants for graduate study and with other Engineering Science students; (d) a plan of study consistent with the requirements and spirit of the program; and (e) strong recommendations that comment incisively on the aforementioned criteria.

3. Applicants are notified of the action of the committee. If the application has been approved by the ESM IUG Committee, it is sent to the Graduate School for approval. The Graduate School application fee must be sent along with the application.
4. When a candidate has been approved for IUG status by both the Engineering Science Department and the Graduate School, he or she will receive a letter of notification from the director of graduate admissions.
5. At the end of each semester, a student with IUG status must report to the ESM Undergraduate Officer which courses taken that semester are to be counted both toward the graduate and undergraduate degrees or toward the graduate degree alone. A form for such reporting is available in 212 EES Building.
6. Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student receives financial support, such as an assistantship, requiring the payment of graduate tuition.
7. A student may retain IUG status for as long as he or she maintains a GPA of 3.2 or better. If the GPA falls below 3.2, the ESM Undergraduate Officer and the ESM Graduate Officer shall jointly review the student's performance to ascertain if the student could be allowed the probationary period of a semester to meet or exceed the 3.20 GPA requirement, in light of extenuating circumstances. If IUG status is terminated, the provisions of item 2(c), above, relative to 12 credits being applicable to both an undergraduate and graduate degree program, cease to apply. Termination of the IUG status would require the student to fulfill all regular requirements of the M.S. degree program in order to obtain that degree.
8. An appropriate notation of participation in the Integrated Undergraduate Graduate program will be made on the student's transcript.
9. Undergraduate tuition rates will apply as long as the student is an undergraduate, unless the student receives financial support, for example, an assistantship requiring the payment of graduate tuition.

## **II. THE UNDERGRADUATE PROGRAM**

The College of Engineering and, in particular, the Engineering Science Honors program, the undergraduate major in the Department of Engineering Science and Mechanics, are both highly ranked. For example, the college is ranked sixteenth nationally in the *U.S. News and World Report College Report (2005)*. The Engineering Science curriculum is characterized by greater breadth of training in the engineering sciences than is found in traditional engineering majors. It is a broad, science-based program, with relatively uniform emphasis over all the engineering sciences for the first three years. In their senior year, students can use their technical electives in conjunction with their research and design project to pursue any particular engineering science area in depth.

The engineering sciences are built on a foundation of required courses in basic science and mathematics, many of which are designed exclusively for Engineering Science students. These courses stress the basic principles underlying engineering analysis and the transferability of engineering concepts from one discipline to another. The student builds on these sequences by choosing elective courses and a senior capstone research and design project appropriate to his or her specific field of interest.

It should be noted that in the Engineering Science curriculum, depth in an area is not sacrificed to obtain overall breadth. This is possible by (1) using accelerated courses (appropriate for the E SC Honors students), (2) a junior year devoted to the engineering sciences, and (3) a senior year wherein the student may choose four technical electives in an area in which to carry out the capstone research and design project and write a senior thesis.

A distribution of topic areas, a listing of courses satisfying these topic areas, and a listing of credit assignments to the various areas is in the table below.

For excellent students who are interested in serving society as creative engineers, the Engineering Science major offers a unique opportunity. Its emphasis on a science background and interdisciplinary nature prepares students to cope with the complex, multi-faceted problems of technology in contemporary society. The many options available permit students to enrich and strengthen their background in an area of individual choice.

<b>Topic</b>	<b>Required Courses</b>	<b>Credits</b>
<i>Chemistry</i>	CHEM 012, 014	4
<i>Physics</i>	PHYS 211, 212, 214	10
<i>Math</i>	MATH 140, 141, 220, 230, 251, E SC 404H	21
<i>Mechanics</i>		
Equilibrium	E MCH 110H	5
Dynamics	E MCH 112H	3
Quantum and Statistical	E SC 312	3
<i>Design &amp; Research</i>	E D&G 100, E SC 410H, 411H, 433H	10
<i>Electricity &amp; Magnetism</i>	E E 210H	4
<i>Thermodynamics/Heat Transfer</i>	M E 120	4
<i>Materials Engineering</i>	E SC 414M	3
<i>Computing</i>	CMPS 201 or E SC 261M, E SC 407H	6
<i>General Education</i>	ENGL 15 or 30, ENGL 202C, CAS 100	9

<b>Topic</b>	<b>Area of Student's Choice</b>	<b>Credits</b>
<i>Chemistry</i>	CHEM 013, 038H, B M B 251H	15
<i>Fluid Mechanics</i>	AERSP 308	
<i>Failure Analysis</i>	E MCH 416H	
<i>Electricity &amp; Magnetism</i>	E SC 400H, 419	
<i>Biology/Bioengineering</i>	BIOL 141, BIOE 201, 303, 401	12
<i>Technical Selections</i>	From list	
<i>General Education</i>	Arts, Humanities, Social Sciences, Health	22

## II – 1. Scholastic Requirements, Honors Program

The Engineering Science major is the Honors program of the College of Engineering. The following features characterize this Honors program at Penn State:

- a. For admission to the Engineering Science program, a student must show unusual academic promise.
- b. For admission, a cumulative grade-point average of at least 3.00 is required. Faculty approval is required if the cumulative average is below 3.00.
- c. Students who are in the first or second year and who are considering Engineering Science as a major are encouraged to take Honors courses whenever possible. During the combined third and fourth years, without exception, no fewer than 19 Honors credits will be accepted in satisfaction of Honors degree requirements.
- d. Each student in the Honors program must complete a senior thesis. In Engineering Science, the report of the Senior Capstone Research and Design Project (E SC 410H and 411H) serves as the senior thesis.

The thesis must be typed and submitted no later than one week before the last day of classes of the semester in which the student is registered for E SC 411H. The report is submitted in triplicate and each copy must be copied according to departmental regulations. One copy is for the department, one is for the student's project adviser. The Schreyer Honors College receives an unbound copy. Appendix D contains guidelines for the preparation of the thesis.

- e. Each student must pass a comprehensive examination administered by the department Honors committee. This examination is usually taken in the second semester of the senior year. The examination may be either oral or written, and may concentrate on the senior project, or it may be broader in scope, dealing with the basic topics in the engineering sciences.
- f. To remain in the Engineering Science major, a student must maintain a cumulative average of at least 2.50. If the average falls below 2.50, the student is expected to change to another major.

- g. Engineering Science students must earn a minimum grade of C in the following required courses: E MCH 110H, E MCH 112H, E SC 404H, E SC 407H, and E SC 414M.
- h. Engineering Science seniors who have completed the requirements for graduation will be recommended for an honors diploma if they: (1) complete a satisfactory senior thesis, (2) pass the comprehensive examination, and (3) have a cumulative average of 3.20 at the time of graduation.

At the end of every semester, the chair of the curriculum committee and the department head, in consultation with appropriate members of the faculty, review the academic record of each student enrolled in Engineering Science to determine if the level of his/her performance is in keeping with the goals and requirements of the major. Should this review identify any students whose performances are below the standards expected of Engineering Science students, the department head, on behalf of the department faculty, counsels these students on the advisability of continuing in the major.

## **II – 2. Student Organizations and Programs of Interest**

The Department of Engineering Science and Mechanics maintains a student chapter of a professional society, the Society of Engineering Science (SES). The student chapter of SES was established at Penn State in 1972. This professional society was founded by engineers in widely divergent and interdisciplinary fields whose interests did not fall within the boundaries of traditional disciplines such as electrical or mechanical engineering. The SES student chapter should be of interest to every student in the department. Students are encouraged to take advantage of the opportunity to benefit from both the career and social aspects of membership.

The student chapter of the Society for the Advancement of Materials and Process Engineering (SAMPE) was established to “promote advancing and disseminating scientific, engineering, and technical knowledge particularly with respect to the manufacturing process of materials.”

Announcements of organization officers and activities are posted on a bulletin board in the corridor outside the department office.

Through a program called Undergraduate Research Internships, a limited number of sophomores and juniors may obtain full time (40 hours per week) summer employment at the University. The students will work on current research and development projects with faculty and graduate students.

A very limited number of upper level students may be chosen each semester to participate in the Teaching Interns Program. These students will be provided some financial remuneration to assist in the teaching of a lower level engineering course under the supervision and mentoring of the faculty member teaching the course. This program is designed to encourage

students to consider a career involving teaching by providing some practical experience in the profession.

The students in the department elect two representatives to the Engineering Undergraduate Council, which speaks for the entire undergraduate student body of the college.

The College of Engineering is committed to providing opportunities and access to women and minorities. The Minority Engineering Program is responsible for recruiting and retaining under-represented minorities, and for encouraging these qualified students to pursue engineering careers. The Minority Engineering Program offers advising, counseling, and tutoring services through the minority engineering student assistance center.

The Women in Engineering Program is responsible for recruiting and retaining women students. The program offers advising for women, organizes activities, and conducts research about women in engineering.

Interested students are encouraged to take advantage of the Cooperative Education program, explore the opportunity to study abroad during the junior year, or considering participation in the Integrated Undergraduate/Graduate program.

### **II – 3. Scholarships and Financial Aid**

For information contact the Office of Student Aid, 314 Shields Building, 865-6301.

### **II – 4. Employment Opportunities**

The B.S. Honors degree in Engineering Science provides a balanced education in both the theoretical and experimental aspects of pure and applied science. Graduates are sought by many industrial concerns and by research and administrative agencies of the federal government. Starting salaries in past years have been among the highest for all graduates in engineering.

Among the graduates in Engineering Science over the past few years, approximately 50 percent have entered graduate schools immediately after graduation. The others have accepted full-time industrial positions.

Most Engineering Science graduates who go on to graduate school have financial assistance in the form of a graduate assistantship. Students interested in graduate studies should see their advisor for more information.

Announcements of employment opportunities are provided to the department on a continuing basis by the University Placement Office. These announcements are posted on the bulletin board near the department office. Students may obtain more detailed information concerning employment opportunities at the Placement Office in the Boucke Building.

Department majors may also elect to participate in the Cooperative Engineering Education Program, which offers the opportunity to experience engineering as it is actually practiced. Interested students should contact the departmental Coop coordinator.

The following are two websites that contain extensive listings of employment opportunities that all students should find useful: [www.psu.edu/dept/cdps/](http://www.psu.edu/dept/cdps/) or [www.engr.psu.edu/dept/cdps](http://www.engr.psu.edu/dept/cdps)

## **II – 5. Curriculum Description**

The curriculum in Engineering Science has been designed so that a student in this major can attend a Commonwealth Campus for the complete freshman and sophomore years before transferring to the University Park Campus, without delaying graduation.

The following table shows the typical semester-by-semester placement of courses at University Park Campus. At a Commonwealth Campus, the differences are (1) that E MCH 11 plus E MCH 13 (6 credits) will replace E MCH 110H (5 credits) and (2) it is recommended that students complete their Health and Physical Activity requirement during their freshman and sophomore years.

It should be pointed out that the 12 credits of senior technical electives and the two senior project courses, E SC 410H and 411H, comprise 18 credits in an engineering area of the student's choice. This degree of flexibility enables students to gain excellent preparation for a career orientation of their choice. ***At least two of the technical elective credits must be engineering design and at least three must be engineering science.*** The table included in the Engineering Science Undergraduate Program Guide lists the engineering design/engineering science category content of many engineering courses.

**Engineering Science**  
Starting at University Park

1 <sup>st</sup> Semester			2 <sup>nd</sup> Semester		
<b><i>\$CHEM 12</i></b>	<b><i>Chemical Principles</i></b>	<b>3</b>	Foundational		3
<b><i>\$MATH 140</i></b> or <b><i>140E</i></b>	<b><i>Calculus I</i></b>	<b>4</b>	CHEM 14	Experimental Principles	1
ED&G 100	Engr Design & Graphics	3	<b><i>\$MATH 141</i></b> or <b><i>141E</i></b>	<b><i>Calculus II</i></b>	<b>4</b>
ECON 2, 4 or 14 (GS)		3	<b><i>\$PHYS 211</i></b>	<b><i>Mechanics</i></b>	<b>4</b>
ENGL 15 or 30	Rhetoric & Comp. (or	3	E SC 261M** or CMPSC 201	Programming	3
		<u>16</u>	First-Year Seminar		<u>1</u>
					<u>16</u>
3 <sup>rd</sup> Semester			4 <sup>th</sup> Semester		
MATH 230	Calculus III	4	MATH 251	Ordinary & Partial Diff. Eqns.	4
MATH 220	Matrices	2	*CAS 100A/B	Effective Speech	3
PHYS 212	Electricity & Magnetism	4	PHYS 214	Waves & Quantum Physics	2
<b>+E MCH 110H**</b> or <b>210</b>	<b>Equil. Mechs.</b>	<b>5</b>	<b>+E MCH 112H**</b> or <b>12</b>	<b>Mech. of Motion</b>	<b>3</b>
GA, GH or GS course		3	GA, GH or GS course		<u>3</u>
		<u>18</u>			<u>15</u>
5 <sup>th</sup> Semester			6 <sup>th</sup> Semester		
<b>+E SC 407H **</b>	<b>Computer Methods in E SC</b>	<b>3</b>	M E 120**	Engineering Thermodynamics	4
<b>+E SC 414M**</b>	<b>Elements of Material Science</b>	<b>3</b>	Foundational Elective		3
E SC 312**	Engng Appl Waves, Part, Ensembles	3	Foundational		3
E E 210H**	Principles of Electrical Engr.	4	Foundational		3
GA, GH or GS course		3	Foundational Elective		<u>3</u>
E SC 433H**	Research Lab Experience	1			<u>16</u>
		<u>17</u>			
7 <sup>th</sup> Semester			8 <sup>th</sup> Semester		
<b>+E SC 404H**</b>	<b>Analysis in E SC</b>	<b>3</b>	E SC 411H	Senior Design Project	3
E SC 410H	Senior Design Project	3	~Technical Elective		3
~Technical Elective		3	~Technical Elective		3
~Technical Elective		3	GA, GH or GS course		3
ENGL 202C	Technical Writing	3	GA, GH or GS course		<u>3</u>
Health & Physical Activity (GHA)		3			<u>15</u>
		<u>18</u>			

**Total Credits - 131**

***\$*** Courses listed in ***boldface italic type*** require a grade of C or better for entrance into this major.

***+*** Courses listed in ***boldface type*** require a grade of C or better for graduation in this major.

***\**** Engineering Scientists must effectively communicate their designs/results. Additionally, they serve society well by explaining technology and its impacts to the general public. CAS 100 can be optimized for engineering scientists if they select their topics with this in mind.

***\*\**** These courses are only offered once a year and in the semester indicated on the schedule (odd numbered semesters correspond to Fall, even numbers to Spring).

~ Three credits of Co-op can be used for one technical elective after completion of three Co-op rotations. For those students who complete the ROTC Program, 3 ROTC credits may be used to substitute for a technical elective and 3 ROTC credits may be used to substitute for the GHA requirement.

### III. MASTER'S DEGREE IN ENGINEERING MECHANICS

A student beginning his or her graduate work should, after studying the regulations, seek the assistance of the graduate officer or a designate in planning a program of study. The graduate officer will give final approval of the course program prior to registration for each semester, or will designate an adviser for this purpose. The student is to file a plan of study (departmental study/research objective) with the department during the first six weeks after admission.

Before accumulating 20 graduate credits (either at Penn State or by credit transfers), the candidate should select a thesis or report topic and obtain the agreement of a member of the departmental graduate faculty to act as supervisor. The candidate should feel free to approach any member for advice and counsel.

The thesis required for the Master of Science degree in Engineering Mechanics must be a well-organized account of research on an appropriate topic. In this research, the student must show initiative and originality, and not merely carry out a routine test or investigation.

The M.S. thesis will be examined by a master's committee consisting of three faculty members, including the thesis advisor, and approved only after a satisfactory oral examination. It is the responsibility of the student to arrange the time and date of the examination and to deliver a draft of his or her thesis to each member of the committee at least two weeks prior to the thesis defense.

**A master's candidate is not required to register for the final semester in order to graduate or in order to make minor revisions to the thesis and/or take a final examination for the degree.**

The completed and signed thesis in loose form must be submitted to the Graduate School by the deadline set by the Graduate School. **Prior to Commencement, the student must deliver to the department office two copies of his/her thesis, bound in accordance with the Graduate School requirements.** The department head must sign the signatory page prior to binding.

All requirements for a master's degree (including acceptance of a thesis, paper, or project report as may be specified), whether satisfied on the University Park Campus or elsewhere, must be met within eight years of admission to degree status. Extensions may be granted by the graduate dean in appropriate circumstances.

#### **The Thesis Defense**

The thesis defense is open to the public. The examination is related mainly to the thesis.

The thesis presentation should emulate the presentation of a paper at a technical session of a national professional meeting. That is,

1. it should be presented within a definite time – roughly 20 minutes for an M.S.;

2. the talk should have been rehearsed with the actual visual aids prior to the presentation in order that the time limitations can be verified;
3. as it is unlikely that a visual aid can be covered in less than two minutes, plan to have a maximum of ten visual aids;
4. the presentation should proceed without interruption from the audience;
5. questions to the examinee must be answered by the examinee (i.e. not the thesis adviser.)

It is important to note that an excessively long presentation may result in rejection by the committee. Additionally, examinees should be able to address the contributions of their research as well as strong and weak points.

When the student delivers the draft of the thesis to each member of his/her master's committee, a determination of the dates available for the thesis defense should be made with the members of the committee and the thesis must be delivered to each committee member a **minimum of two weeks before the day of the defense.**

The thesis in loose form must be delivered to the Graduate School by the deadline set by the Graduate School. **Prior to Commencement, the student shall deliver to the department office two acceptable copies of his/her thesis (one copy for the department file and the other for the adviser), bound in accordance with the requirements detailed in the Graduate School's *Thesis Guide*.** We encourage students to purchase a copy for use in preparing the thesis from the Thesis Office, 211 Kern Building. Costs incurred for thesis binding are the responsibility of the student.

***Reminder: The department head must sign the signatory page prior to binding.***

## Engineering Science (BS)/Engineering Mechanics (MS)

Example of a 5 year plan for an IUG program for a BS in Eng. Science, MS in Engineering Mechanics

This example considers a specialization in the mechanics of solids

Note: All E SC undergrads have four technical selections and a 6 credit Senior thesis

<b>Fourth Year</b>			COURSE NO.	Title	Credits
Fall Semester	tech elect		<b><i>E MCH 500</i></b>	<b><i>Solid Mechanics</i></b>	<b>3</b>
	tech elect		<b><i>E MCH 471</i></b>	<b><i>Engineering Composite Materials</i></b>	<b>3</b>
			E SC 410H	Senior Capstone Research and Design Project	3
			ENGL 204C		3
			E SC 404H		3
			Health, Physical Act		3
Spring Semester	tech elect		<b><i>E MCH 530</i></b>	<b><i>Mechanical Behavior of Materials</i></b>	<b>3</b>
	tech elect		<b><i>E MCH 461</i></b>	<b><i>Finite Elements</i></b>	<b>3</b>
			E SC 411H	Senior Capstone Research and Design Project	4
			AHS ELECTIVE		3
			AHS ELECTIVE		3
BS Thesis "Determination of Delamination in Composites"					
<b>Fifth Year</b>					
<b>Assumes that the student is on a ½ time TA or RA</b>					
Fall Semester			E MCH 507	Theory of Elasticity & Applications	3
			E MCH 514	Seminar	1
			E MCH 532	Fracture Mechanics	3
			E MCH 600	M.S. Thesis	3
Spring Semester			E MCH 560	Finite Element Analysis	3
			E MCH 514	Seminar	1
			E MCH 524B	Mathematical Methods in Engineering	3
			E MCH 600	M.S. Thesis	3

***Course in bold italics (12 credits) count for credit towards both the BS, MS degrees***

MS Thesis "Analytical Study of Energy Balances in Composite Failure"

TOTAL CREDITS TOWARDS M.S.	12 Year Four
	20 Year Five
	32 Total Credits
REQUIRED CREDITS FOR M.S. = 32	

**ESM IUG Programs - Plan of Study**

Name: \_\_\_\_\_ PSU ID: \_\_\_\_\_

Circle one below: Date of B.S. Degree: \_\_\_\_\_

M.S./E SC or M. S./E MCH Date of M.S. Degree: \_\_\_\_\_

Courses in Major or Graduate Degree program, to be taken *prior to* completion of baccalaureate degree requirements, which are to be counted in:

<i>Undergraduate Major Only</i> (Senior Year)			<i>Graduate Program Only</i>			<i>Both Programs*</i>		
<u>Course</u>	<u>Semester</u>	<u>Credits</u>	<u>Course</u>	<u>Semester</u>	<u>Credits</u>	<u>Course</u>	<u>Semester</u>	<u>Credits</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
	<i>Total</i>	_____		<i>Total</i>	_____			

\*NB: A minimum of 50% of courses proposed to count must be at the 500 level. Thesis credits may NOT double count. No more than 12 credits may double count.

***Total*** \_\_\_\_\_

**Courses to be taken *following* completion of baccalaureate degree requirements:**

Courses	Semester	Credits
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
	<b><i>Total</i></b>	_____

Student \_\_\_\_\_  
(Signature) (date)

Undergraduate Adviser \_\_\_\_\_  
(Signature) (date)

Honors Adviser \_\_\_\_\_  
(Signature) (date)

***Expedited IUG Application***  
Schreyer Honors College  
For Schreyer Scholars Seeking Entrance into Another Approved IUG Program

Name: \_\_\_\_\_ PSU ID: \_\_\_\_\_

Undergraduate Major(s): \_\_\_\_\_

Anticipated Date of Receipt of your Baccalaureate Diploma(s): \_\_\_\_\_

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Which IUG program are you applying for:

- [Animal Sciences - Integrated B.S. in Animal Sciences/Master of Biotechnology in Biotechnology Program](#)
- [Architecture - Integrated BARCH-MARCH Program](#)
- [Architectural Engineering - Integrated B.A.E./M.A.E. Program](#)
- [Biotechnology - Integrated B.S. in Biotechnology/Master of Biotechnology in Biotechnology Program](#)
- [Comparative Literature - Integrated B.A./M.A. in Comparative Literature](#)
- [Engineering Science - Integrated B.S./M.S. in Eng. Mechanics](#)
- [Engineering Science - Integrated B.S./M.S. in Eng. Science](#)
- [Geosciences - Integrated B.S./M.S. in Geosciences](#)
- [Health Policy and Administration - Integrated B.S./M.H.A.](#)
- [Labor and Industrial Relations/Industrial Relations and Human Resources - Integrated B.S./M.S.](#)
- [Landscape Architecture - Integrated B.L.A./M.L.A.](#)
- [Mathematics - Integrated B.A./Master of Applied Statistics](#)
- [Mathematics - Integrated B.S./Master of Applied Statistics](#)
- [Media Studies - Integrated B.A./M.A. in Media Studies](#)
- [Meteorology - Integrated B.S./M.S. in Meteorology](#)
- [Music - Integrated B.A. in Music - M.A. in Music Theory](#)
- [Music - Integrated B.A. in Music - M.A. in Music Theory and History](#)
- [Music - Integrated B.A. in Music - M.A. in Musicology](#)
- [Music - Integrated B.M. in Performance - M.A. in Music Theory](#)
- [Music - Integrated B.M. in Performance - M.A. in Music Theory and History](#)
- [Music - Integrated B.M. in Performance - M.A. in Musicology](#)
- [Science - Integrated B.S. in Science - Master of Business Administration \(M.B.A.\)](#)
- [Spanish - Integrated Spanish B.S. and Industrial Relations and Human Resources M.S. Degree Programs \(SPIRHR\)](#)
- [Statistics - Integrated B.S. in Statistics and Master of Applied Statistics \(M.A.S.\)](#)

Anticipated Date of the receipt of your Master's Diploma: \_\_\_\_\_

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The Schreyer honors thesis must be completed before you receive your baccalaureate diploma.

Specify how your Schreyer honors thesis will relate to any other thesis you must complete? (check one):

- I plan to only write an undergraduate Schreyer honors thesis (i.e., my major and master's degrees do not require a thesis).
- I plan to write a separate undergraduate Schreyer honors thesis (i.e., my major and/or master's degree thesis will be separate work).
- I plan to use the thesis required for my undergraduate major as my undergraduate Schreyer honors thesis; my master's thesis will be different.
- I plan to use my master's thesis as my Schreyer Honors thesis, therefore I plan to delay the receipt of my baccalaureate diploma until my masters thesis is also completed.

According to the Graduate School, you may “double-count” courses on both your undergraduate and graduate transcripts, with the following restrictions:

- No more than 12 credits may double-count.
- A minimum of 50% of courses double-counted must be at the 500-level.
- Thesis credits may NOT double-count.

Identify all the courses you intend to “double-count” for your IUG program:

<u>Course</u>	<u>Credits</u>	<u>Semester</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

All courses used to meet undergraduate honors requirements must be on your undergraduate transcript, so any 500-level courses used to meet your undergraduate honors requirements must remain on your undergraduate transcript or be double-counted. 500-level courses that only show up on your graduate transcript are not eligible to meet your undergraduate honors requirements.

The Schreyer Honors College course and credit requirements:

- First-year/Sophomore requirement: At least 6 honors courses for 18 or more honors credits (counting ENGL 030 – honors composition)
- Junior/Senior requirement: 14 or more honors credits
- Advanced-level courses, study abroad, internship abroad, and research abroad may count for honors credits (see Schreyer Honors College Student Handbook for details).

Identify all courses you have taken or will take towards the completion of your **Honors Course and Credit Requirements**.

<u>Course</u>	<u>Credits</u>	<u>Semester</u>	<i>check one</i>		<u>Course</u>	<u>Credits</u>	<u>Semester</u>	<i>check one</i>	
			<u>FY/Soph</u>	<u>Jr/Sr</u>				<u>FY/Soph</u>	<u>Jr/Sr</u>
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

All of the courses listed here will appear on my final undergraduate transcript:  Yes  No

Study Abroad: Where? When? How long? \_\_\_\_\_

Student \_\_\_\_\_  
 (Signature) (date)

Honors Adviser: \_\_\_\_\_  
 Name Signature (date)

Attach a current transcript and a letter of acceptance from the program administrator to this form, then submit it to the Associate Dean of the Schreyer Honors College. Intercampus- or US-mail to 10 Schreyer Honors College, or hand-deliver to C-004 Atherton Hall.

Approved: \_\_\_\_\_  
 Name of Associate Dean Signature (date)

