

**JOINT MASTERS OF SCIENCE IN ENVIRONMENT AND RESOURCES  
PROGRAM REQUIREMENTS FOR THE ACADEMIC YEAR 2011-2012**

Stanford University's Emmett Interdisciplinary Program in Environment and Resources (E-IPER) offers a Joint Master of Science degree (MS) in Environment and Resources for selected professional school students with interests and career goals in the environment, resource management, and sustainability fields. E-IPER's Joint MS Program gives professional school students the opportunity to gain a background in the science, engineering, and technology that underlies current environmental problems, preparing them to be influential and innovative environmental leaders in their chosen careers.

**APPLICATION**

Students in the Graduate School of Business (GSB), Stanford Law School (SLS), School of Medicine (SoM), or, in exceptional circumstances, students pursuing a PhD in another department may apply for the Joint MS in Environment and Resources. Completion of the professional school and Joint MS degree requirements results in the award of the Joint MBA-MS in Environment and Resources degree, Joint JD-MS in Environment and Resources degree, or Dual MD (or PhD)-MS\* in Environment and Resources degree. The Joint MS degree may not be conferred independent of the professional degree. Applications from current Stanford business, law, and medical students are due annually in Winter quarter. Application information is updated on the E-IPER website annually in advance of Autumn quarter. Prospective GSB and SLS applicants may apply for the Joint MS simultaneous with their MBA or JD application. Instructions for doing so are incorporated in the GSB and SLS online application systems.

(\*Technically, students in the School of Medicine and other PhD programs pursue a Dual MS degree, not a Joint one. Except where indicated, all requirements referring to the Joint MS also apply to students pursuing the Dual MS degree.)

**REQUIREMENTS**

These Requirements apply to students beginning the Joint MS in AY2011-2012. They were revised and approved by E-IPER's Executive Committee. A summary is published in the 2011-2012 Stanford Bulletin, under the School of Earth Sciences, as required by the University:

<http://www.stanford.edu/dept/registrar/bulletin/5065.htm>.

**A. COURSEWORK (ALL UNITS GIVEN IN QUARTERS)**

All Joint MS students are required to complete one of two foundational E-IPER Joint MS courses for a letter grade and complete the Joint MS Capstone Project and Seminar, described below. Students must maintain a "B" average in all E-IPER coursework.

**1. Required Courses****a. Foundational Courses**

**For Joint MBA-MS students: OIT/ENVRES 538 or 539. Environmental Science for Managers I (3 units, Winter) and OIT/ENVRES 540 Environmental Science for Managers II (1 unit)**

In these courses, Joint MBA-MS students will learn the fundamental science of *ecosystems, climate and energy systems* and build policy- and decision-support models for these systems. The courses are taught by a diverse team of Stanford faculty. The courses will be counted toward the Joint MS regardless of what course number students register under and will not be counted as part of the 12 unit maximum from

the student's professional school (see section D. Unit Accounting). *It is required that GSB students take these classes in their first year.*

***For all other Joint MS students: ENVRES 310. Environmental Forum Seminar (1-2 units, Autumn)***

This course focuses on conceptual frameworks, analytical approaches, validity of conclusions from an interdisciplinary perspective. On a weekly basis, participants attend a pre-selected campus seminar (e.g. EESS Departmental Seminar, Energy Seminar, etc.), followed by student-facilitated discussions. This course should be taken in the Fall quarter of the second year at Stanford for law students and in the Fall quarter of the first year of E-IPER work for all other students. E-IPER's first year PhD students also take this course.

***b. ENVRES 290. Capstone Project Seminar (3 units, Autumn, Spring)***

All Joint MS students are required to complete a final project that integrates their professional degree and Joint MS coursework. To facilitate their projects, students must take ENVRES 290. The course is offered Autumn and Spring quarters and provides the structure for students to initiate, complete, and present their Projects. The Capstone Project may derive from a previous class, internship, or independent study a student has taken and should be conducted in consultation with the student's advising team, described in Section B. The requirement may be completed as an individual project or with a team of three students maximum and will be completed and presented publicly as part of the Capstone Project Symposium. Further information on the Capstone Project can be found on the E-IPER website (<http://e-iper.stanford.edu/academics/joint-ms/joint-ms-capstone-project>).

## **2. Course Tracks**

Each student must select one of eight Course Tracks to focus his/her Joint MS coursework. Course Tracks are organized around one broad topic: Energy; Climate & Atmosphere; Cleantech; Land Use & Agriculture; Oceans & Estuaries; Freshwater; Global, Community, & Environmental Health; and Sustainable Built Environment. Courses are included in more than one Track where appropriate. Students must complete a minimum of four classes within one Track, all of which must be completed for a letter grade, while maintaining a "B" average. These courses have been approved by E-IPER faculty as appropriate for Masters-level students; however, students should check pre-requisites to ascertain the appropriateness of specific courses and add relevant pre-requisites to their Program Plan for a Masters Degree as needed (see Section C for description of this form).

Course Tracks will be updated throughout the year on the E-IPER web site: <http://e-iper.stanford.edu/academics/joint-ms/joint-ms-course-tracks>. Students and faculty may submit suggestions to the Joint MS Program Manager.

## **3. Additional Courses**

In addition to the two required courses, Capstone Project, and a minimum of four selected from a Course Track, Joint MS students are required to complete at least four additional *graded* elective courses that are relevant to their Joint MS (for 3-5 units each) at the 100-level or higher, while maintaining a "B" average. These courses may be taken from the student's selected Track, from another Track, or elsewhere in the University. Of the courses selected from the Course Tracks and these additional four courses, at least half (i.e. four) must be at or above the 200-level (or equivalent, as approved by the Executive Committee). Independent study courses (directed reading, independent research, or practicum units) taken within E-IPER (ie. ENVRES 398, ENVRES 399, or ENVRES 270) or in the student's professional school, may count toward one course of this requirement of four additional courses, but must be taken for a grade. Independent study courses, in total, may count for a maximum of four units for Joint MS students and require completion of an Independent Study Agreement form for E-IPER credit (available at: <http://pangea.stanford.edu/programs/eiper/resources/requirements-and-forms> ).

#### 4. Lecture Series

A maximum of 3 courses or 5 units from courses that are identified as primarily consisting of guest lecture series may be counted toward the Joint MS. These include the Energy Seminar, the Environmental Law Workshop, most courses with Advanced or Special Topics in their title, and others listed on the E-IPER website: <http://e-iper.stanford.edu/academics/joint-ms/joint-ms-curriculum>. These courses may not count toward the requirement of four additional courses.

#### 5. Limits on Professional School Courses

Certain professional school courses are recommended for students in those schools and should also be considered by all Joint MS students as contributions to the students' interdisciplinary program. One of these courses may be counted towards the *Additional Courses* requirement above. However, to ensure the science, technology, and engineering focus of the Joint MS, it is essential that students not overload their program with courses from their professional school. A maximum of 12 units of recommended courses from a student's professional school may count toward the Joint MS. Recommended professional school courses are listed on the E-IPER website: <http://e-iper.stanford.edu/academics/joint-ms/joint-ms-curriculum>.

Students may obtain credit for courses in their professional school not on E-IPER's recommended list according to the following policy:

Students may petition to receive E-IPER credit for non pre-approved courses in their professional school by submitting a Petition for an Exception to the Requirements form and a course syllabus. Only courses in which a minimum of 50% of the grade is for a major project or assignment that focus on the student's environmental interests will be considered. All petition materials must be submitted to the Joint MS Program Manager before the add/drop deadline in the quarter that the student is taking the course. Petitions submitted after this deadline may not be accepted. Students petitioning for a course already completed must also submit the project or assignment that meets the criteria above.

#### 6. Exceptions

Students submitting exceptions to the Requirements must use the Joint MS Petition for an Exception to a Requirement Form (available at <http://pangea.stanford.edu/programs/eiper/resources/requirements-and-forms>). *Students may confer with each other and with their advisors when submitting petitions.* Such an approach strengthens the petition and helps the program adapt the requirements to better meet students' needs and incorporate curriculum changes we might not have been aware of when the Tracks and requirements were approved. Petitions will be reviewed by staff, the Faculty Director, the Executive Committee, and other faculty as necessary.

#### 7. Resources to identify additional courses of interest and current schedules include:

- Stanford University Bulletin (updated on line each summer): <http://www.stanford.edu/dept/registrar/bulletin/>
- Axxess – Explore Courses: <http://explorecourses.stanford.edu/CourseSearch/>
- The Earth Systems program: <http://pangea.stanford.edu/ESYS/courses/>
- The Woods Institute's Energy and Climate Course list (see additional resources listed here): <http://environment.stanford.edu/students/grad.html>
- The Environmental and Natural Resources Law and Policy Program: <http://www.law.stanford.edu/program/centers/enrlp/#courses>
- The Stanford Energy Club: <http://energy.stanford.edu/>

*Note that outside of its own courses, E-IPER does not have any influence over course schedules. The quarter, day, and time a course is offered may change from year to year and even after the quarter has*

*started, and courses may not be offered every year. Students must remain flexible and patient when scheduling courses outside their professional schools. “Shopping” courses – attending the first few sessions before making a firm decision to keep a course – is a common practice at Stanford. Joint MS students should take advantage of this opportunity and identify more classes than they need, check out the professor, syllabus, and other students, and adjust their schedule by adding or dropping classes as needed.*

## **B. ADVISING**

Joint MS students are assigned to an advising group consisting of 4-6 Joint MS students with similar interests, an E-IPER faculty advisor, and an E-IPER PhD peer advisor who are selected for their expertise and knowledge in the Joint MS student’s area of interest. The advising groups provide smaller interest groups within the larger Joint MS community. Faculty and PhD peer advisors and E-IPER staff assist students in selecting courses and developing a cohesive and rigorous Joint MS course of study and Capstone Project. See Appendix ii for more information on Joint MS advising. *The faculty advisor must sign the student’s Joint MS Program Plan (described in more detail below) and may also be asked by staff to approve any exceptions to required coursework for which the student might petition.*

The Joint MS Program Manager serves as a general student advisor, providing support to all Joint MS students on E-IPER’s requirements and degree progress. The Associate Director also advises students on their overall program plan, career goals, and advisor relationships. E-IPER Faculty Director and the Executive Committee provide guidance at the policy level and approve the program’s degree requirements annually.

## **C. FINALIZING A COURSE PLAN**

During their second quarter in the Joint MS program (i.e., Winter Quarter 2012), students are required to formally submit their **Joint MS Program Plan** by the final study list deadline (available at: <http://pangea.stanford.edu/programs/eiper/resources/requirements-and-forms>). Because the **Program Plan** is submitted early in a student’s Joint MS career, it can only record a student’s best estimate in terms of coursework and is not a binding document, but must remain on file with E-IPER. *This form must be discussed with and signed by the student’s faculty advisor before submission to E-IPER staff.*

Students, their advisors, and E-IPER staff should also track degree progress using the **Joint MS Course Planning Template** (<http://pangea.stanford.edu/programs/eiper/resources/requirements-and-forms>), which is a working draft of each student’s plan and unit accounting. This document should be shared with the student’s advising team and with E-IPER staff, approximately every quarter, and should be kept updated by the student and brought to advising meetings for discussion.

## **D. UNIT ACCOUNTING**

Under the Academic Senate-approved Joint degree scenarios, the unit accounting for the Joint JD-MS in Environment and Resources and the Joint MBA-MS in Environment and Resources differ significantly. The Dual MD-MS and PhD-MS in Environment and Resources differ from a Joint MS and will be discussed with individual students.

**i. Joint MBA-MS in Environment and Resources:** The Joint MBA-MS requires a total of 129 units: 84 exclusively toward the MBA, 24 exclusively toward the MS and 21 “shared” units, which count toward both degrees. For an approved GSB course to count toward the 12 allowable professional school units for the MS, MBA students must focus their final projects on an environmental or natural resource topic.

**ii. Joint JD-MS in Environment and Resources:** For students who entered the Law School in September 2009, the Joint JD-MS requires a minimum of 111 quarter units, although it is possible that students may need to take additional units to satisfy the degree requirements for both the JD and Joint MS. 45 units may be double counted toward the MS and the JD. The Law School will allow up to 31 units to be taken outside the Law School, and E-IPER will accept up to 12 units of approved Law School courses towards the MS. See <http://e-iper.stanford.edu/academics/joint-ms/joint-ms-curriculum> for a list of approved courses. *Note: Students must enroll in these 12 shared units under their JD Plan in Axess so they will be accepted toward the JD by the ABA.*

**iii. Dual MD-MS in Environment and Resources:** For a Dual degree, students must meet the University's minimum requirements for both the MD and MS (235 and 45 units, respectively) – no course units may be counted toward both degrees. Because the School of Medicine's requirements exceed those of the University, students pursuing the Dual degree must obtain approval from the School of Medicine and E-IPER to ensure their **Joint MS Program Plan** meets the curricular expectations of both programs. Details of the Dual degree configuration will be discussed with individual students from the School of Medicine.

#### **E. TIME TO DEGREE AND DEGREE CONFERRAL**

It is anticipated that the Joint MBA-MS program will take eight quarters to complete (two full quarters beyond the MBA) - *students should not anticipate completing the Joint MBA-MS in a total of two years.* The Joint JD-MS can be completed in three years at the Law School, *provided the student begins coursework toward the Joint MS in his/her second year in the Law School.* The Dual MD-MS degree is likely to require an additional year of Medical School.

These degrees are conferred together when the requirements for both the Joint MS and the professional degree programs have been met. A student may withdraw from the Joint MS and receive the professional degree when s/he has fulfilled the appropriate requirements. However a student may not receive the Joint MS without simultaneously receiving a professional degree – that is, there is no stand-alone E-IPER MS degree.

#### **F. APPENDICES**

- i. Degree Progress Checklist
- ii. Summary of Joint MS Program Requirements

**E-IPER JOINT MS DEGREE PROGRESS CHECKLIST  
2011 – 2012 ACADEMIC YEAR**

DEGREE REQUIREMENT	TIMELINE	✓
<b>Required Core Courses</b>		
OIT 538 OR 539 . Environmental Science for Managers ( <i>Required for all GSB Joint MS students</i> )	Winter, Year 1 at GSB	
OIT 540 . Environmental Science for Managers II ( <i>Required for all GSB Joint MS students</i> )	Winter, Year 1 at GSB	
ENVRES 310. Environmental Forum Seminar ( <i>Required for all non-GSB Joint MS students</i> )	Fall, Year 1 in E-IPER	
<b>Capstone</b>		
ENVRES 290. Capstone Project Seminar ( <i>Required for all Joint MS students</i> )	1-2 quarters prior to graduation	
<b>Advising</b>		
Meet with Faculty Advisor – discuss course plans, Capstone Project ideas, career plans as appropriate	Fall, Year 1 in E-IPER, recommended once per quarter thereafter	
Meet with PhD Peer Advisor – discuss course plans, Capstone Project plans as appropriate	Fall, Year 1 in E-IPER, recommended once per quarter thereafter	
Meet with E-IPER Staff – discuss degree progress, Joint MS requirements	Fall, Year 1 in E-IPER, Graduation quarter, as needed	
<b>Degree Progress and Graduation</b>		
Select Course Track:	Fall, Year 1 in E-IPER	
Submit signed <b>Joint MS Program Plan</b> ( <i>must be discussed with and signed by E-IPER faculty advisor</i> )	Winter, Year 1 in E-IPER	
Minimum of 4 graded courses in selected Course Track 1. 2. 3. 4.	Prior to graduation	
Minimum of 4 additional graded elective courses from another track or elsewhere in the university 1. 2. 3. 4.	Prior to graduation	
45 total Joint MS units ( <i>no more than 12 units from approved courses in your professional school</i> )	Prior to graduation	
Application to graduate ( <i>Axess form</i> )	Quarterly deadline, in graduation quarter	

## SUMMARY OF THE E-IPER JOINT MS PROGRAM REQUIREMENTS

E-IPER's Joint MS Program requirements are designed with guidance from E-IPER's Executive Committee to ensure that each student completes a rigorous and coherent program of study. The requirements are updated annually, and the complete Requirements document, along with other helpful resources, is available on the E-IPER website:

<http://pangea.stanford.edu/programs/eiper/resources/requirements-and-forms> . Below is a brief summary of the Joint MS Requirements that may be helpful to have on hand during advising meetings.

The E-IPER Joint MS degree requires completion of a total of **45 quarter units**, with no more than 12 units from approved courses in the student's professional school (16 for Joint MBA-MS students including OIT 538/539 & 540). Within these 45 units, several course requirements must also be met:

- **For Joint MBA-MS Students: 3 core courses** - OIT/ENVRES 538 or 539. Environmental Science for Managers I (3 units, Winter) and OIT/ENVRES 540 Environmental Science for Managers II (1 unit) and ENVRES 290, *E-IPER Capstone Project Seminar* for all E-IPER Joint MS students.
- **All non-MBA Joint MS Students (Law, Med, etc.): 2 core courses** – Must take ENVRES 310, *Environmental Forum Seminar*; and ENVRES 290, *E-IPER Capstone Project Seminar* for all E-IPER Joint MS students.
- **At least 4 graded courses in one selected Course Track:** <http://e-iper.stanford.edu/academics/joint-ms/joint-ms-course-tracks>
- **At least 4 additional, graded, graduate-level, 3-5 unit elective courses**, selected by the student, which are relevant to his/her E-IPER program. Examples include courses from another course track; courses in economics, urban studies, computer science, communication, policy, etc.
- At least 4 of the above 8 courses must be taken at the 200 level or above.
- Up to 4 units of relevant Independent Study may be counted towards the Joint MS.
- Up to 5 units or 3 courses that consist mainly of seminar or lecture series may be counted.
- Courses taken for units (ie. *not* the 2 core courses, 4 course track or 4 additional elective courses) may be taken pass/fail. Students generally need additional units to get to the required 45 once the above course requirements have been met.
- Only specified professional school courses may count towards the E-IPER degree: <http://e-iper.stanford.edu/academics/joint-ms/joint-ms-curriculum>.

Please consult the Joint MS Program Manager with any specific questions on the requirements. We also welcome your suggestions for additional courses that should be considered for inclusion in our Course Tracks.