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I. INTRODUCTION

The purpose of this handbook is to provide students in the Earth and Environmental Science Masters of Environmental Studies (MES) Program with information vital to the successful completion of a Special Degree program. In this handbook you will find information on academic requirements, program schedules, policies, and resources at Penn specific to your Special Degree program. Students should also consult the MES Student Handbook and have regular meetings with their academic advisors in all programs involved. This handbook is a supplement to and not a replacement for the MES Student Handbook. In addition, should you have questions that are not answered here or problems that you cannot resolve, you should consult your academic advisor or the MES Director immediately.

The Special Programs for the Masters of Environmental Studies program include: the Dual Degree in the Masters of Environmental Studies and Master of Business Administration (MES/MBA), the Dual degree in the Masters of Environmental Studies and Master of Public Administration (MES/MPA), the Dual degree in the Masters of Environmental Studies and the Juris Doctor (MES/JD), the Dual degree in the Masters of Environmental Studies and Master of Public Health (MES/MPH), the Multi-Masters degree in Environmental Management (ENViM); and Sub-matriculation with Penn undergraduate degree programs.

Each of these special programs allows the double counting of courses which typically results in a student receiving two or more degrees in a shorter time period and for less tuition than if they completed each program separately.

Application and Admissions Procedures for Special Programs

Each Special Degree program has its own set of special procedures for applications and acceptance. Students must be sure they follow all procedures in order to be properly matriculated into these programs. See specific procedures for application and admissions under each program description. Application materials, with the exception of GRE scores, cannot be shared between programs at this time and all materials including recommendation letters and transcripts must be submitted separately to each program when applying.

Tuition and Financial Aid

Each Special Degree option involves a student matriculating into more than one degree program. Students have a primary program each semester which has been carefully determined by the faculties of each graduate group. Thus a specific
schedule for each Special Degree program has been developed and must be followed by students participating in these programs. Deviations from these carefully designed schedules are not allowed unless the student receives written permission from the program directors of all programs involved in the Special Degree program.

Because the student will be changing primary degree programs throughout their academic career, the student is subject to the tuition and fees and any financial aid available for the program in which they are primary. Thus, when the student’s primary program changes the tuition and financial aid structure changes to that of the new program. Special degree candidates must be aware of which program is primary and the corresponding tuition and fees that are applicable. Please note that the MES program does not provide financial aid, scholarships or other financial assistants for any of its students.

Student Status

Although the Master of Environmental Studies program allows the flexibility for students to complete the program either full or part time, students participating in the Special Degree programs may be expected to maintain full time status (exp. JD and MBA programs) as outlined in the special program schedules.

Student Advising

Because of the complex nature of the Special Degree programs, students must meet with the academic advisor in each program at least once a semester to discuss their program progress and choose courses for the following semester. It is vital that all policies and program requirements are followed for each program so that students stay on track towards receiving their degrees on schedule.

II. MES / MBA Dual Degree with the Wharton School

Overview

Currently there is a need for individuals skilled in both the field of business and environmental sciences. The MES/MBA Dual Degree was formed by the Wharton School and the School of Arts and Sciences to meet this need. This course of study will groom students interested in environmental issues for global leadership roles in environmental management, finance, sustainability, and other business specialties.
While Wharton has offered courses in topics related to environmental management for many years (in Business and Public Policy, Insurance and Risk Management, Legal Studies and Business Ethics, and Operations and Information Management), a dual degree program with MES expands the range of skills and knowledge that Wharton students are able to develop in the field of environmental management. The MES program provides needed structure for study within this broad field, which ranges from biology, chemistry, and earth science to environmental regulation and policy and serves as a valuable complement to Wharton business and leadership education.

The ubiquity of environmental policy issues across all parts of the private sector makes this area of study relevant to students, who can then go on to careers where they may demonstrate their expertise in environmental policy and its effects on particular industries. Additionally, the multi-disciplinary nature of the MES degree exposes Wharton students to faculty and students with similar interests in environmentally related topics throughout the Penn community. The capstone component of the MES program allows the student to participate in a research initiative related to this field of study.

**Application and Admissions Procedures**

Students wishing to participate in this program must apply separately to each program. When applying, the student should indicate on each separate application that they are applying to the MES/MBA dual degree program. The applications will be reviewed separately by the admissions committees for each program. Acceptance into one program of the Dual degree does not guarantee acceptance into the other program. Students applying to the MES/MBA dual degree may submit their GMAT scores to both programs (the GRE will be waived for the MES).

**Schedule and Credit Distribution**

The MES/MBA dual degree program is designed to be completed in two and a half years including at least one summer semester. Over the two and a half years students will be in residence at Wharton for three semesters and complete a minimum of 15 credit units (CUs) of Wharton courses, including the core. The MES/MBA student is in residence at SAS for three semesters, at which time he/she completes a minimum of 9 CUs of MES courses that qualify for the MES degree. Of the nine CUs taken in SAS, Wharton will accept four at the graduate level, bringing the dual degree student to the minimum 19 CUs required for the MBA degree. Of the fifteen CUs taken in Wharton, MES will accept three at the graduate level, bringing the dual degree student to the minimum 12 CUs required
for the MES degree. This standard format reduces the typical residency for the two programs from seven to six semesters and reduces the total required CUs from 31 to 24. The timeline below has been designed by the faculties of both Wharton and SAS and should be followed unless express permission is obtained from both program directors.

**Detailed Schedule**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Home Program</th>
<th>Recommended Courses</th>
<th>Total MES cu’s</th>
<th>Total MBA cu’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MBA (Fall)</td>
<td>Wharton Core Curriculum</td>
<td>0</td>
<td>5.5</td>
</tr>
<tr>
<td>2</td>
<td>MBA (Spring)</td>
<td>Wharton Core Curriculum</td>
<td>0</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>MES (Fall)</td>
<td>ENVS 601 Proseminar, 3 MES Foundation</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>MES (Spring)</td>
<td>2 MES Concentration; 1 Foundation, 1 Research Methods</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>MES (Summer)</td>
<td>ENVS 699 Capstone Course</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>MBA (Fall)</td>
<td>Wharton Electives</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total=</strong></td>
<td><strong>9</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

**Notes:** Double counts for the MES are taken in semesters 1, 2 or 6. Double Counts for MBA are taken in semesters 2, 3, or 4

**Special Rules for MES/MBA Dual Degree Students**

- All 9 CUs taken while MES is the primary program must be taken in the School of Arts and Sciences. Courses taken outside of SAS, while MES is the primary program, cannot be counted toward the 9 cu’s for the MES degree.
- MES/MBA students must declare a concentration in Environmental Policy or Environmental Sustainability.
- MES/MBA students must take all foundation courses in the sciences.
- The Capstone project should combine the expertise gained in the MBA program with the environmental knowledge gained from the MES program.
The Curriculum

Wharton Core Curriculum

At least five Wharton elective courses are required, three of which will count toward the MES degree and must also satisfy a standard major. Wharton courses related to environmental studies that might be a natural fit, but would not be required, include, but are not limited to, the following:

- BEPP/OPIM 761 – Risk Assessment and Environmental Management
- BEPP 777 – Cost Benefit Analysis
- LGST 814 – International Business Transactions in Industrialized and Emerging Economies
- LGST 815 – Environmental Management: Law and Policy
- LGST 820 – International Business Ethics
- OPIM 762 – Environmental Sustainability and Value Creation
- INSR 811 – Risk and Crisis Management
- HCMG 901 – Cost Benefit and Cost Effectiveness Analysis
- BEPP 763 - Energy Markets & Policy

See an MBA advisor for a detailed MBA Curriculum.

MES Curriculum

Required Courses

- ENVS 601 – Proseminar: Contemporary Issues in Environmental Studies
- ENVS XXX – A Research Methods Course
- ENVS 699 – Capstone Seminar

Four Foundation courses:

Chosen from the following science courses (substitutions with permission from an MES Academic Advisor):

- ENVS 507 – Wetlands
- ENVS 605 – Bioremediation
- ENVS 609 – Creating Gateways to the Land with Smarter Conservation
- ENVS 610 – Regional Field Ecology
- ENVS 626 – History and Science of Climate Change
- GEOL 421 – Elemental Cycling in Global Systems
- GEOL 503 – Earth Systems & Earth Hazards
GEOL 411 – Soil Science
GEOL 528 – Aqueous Geochemistry
GEOL 611 – Field Study of Soils
GEOL 652 – Physical Geology for Environmental Professionals
GEOL 653 – Introduction to Hydrology

Five Concentration courses:

3 CUs double counted from the MBA will count toward the concentration. The remaining two Concentration courses are chosen from the following policy courses (substitutions with permission from an MES Advisor):

**Environmental Policy**

ENVS 616 – Risk Assessment: Science & Policy Challenges
ENVS 617 – Innovative Environmental Management Strategies
ENVS 621 – Comparative Environmental Regulation
ENVS 622 – Environmental Enforcement
ENVS 624 – National Environmental Protection Act (NEPA)
ENVS 631 – Current EPA Regulatory Practices and Future Directions
ENVS 637 – Global Water Issues
ENVS 638 – Global Water Policy & Governance
ENVS 639 – Policy to Practice in Environmental Management
ENVS 643 – Brownfield Remediation
ENVS 644 – Energy Waste and the Environment
ENVS 673 – The Future of Water

**Environmental Sustainability**

ENVS 494 – Toward Sustainability on the Penn Campus
ENVS 665 – Industrial Ecology
ENVS 669 – Corporate Sustainability Strategies
ENVS 671 – Sustainable Development Strategies: Purpose & Coverage
ENVS 672 – Water Sustainability & Business
ENVS 674 – Life Cycle Assessment
ENVS 682 – Shifting Sustainability: Elevating the Human Potential
III. MES / Master of Public Administration (MPA) Dual Degree

Overview

The MPA prepares students for leadership in government, nonprofit organizations, and private firms engaged in public sector work. The exposure to biology, chemistry, earth sciences, and other relevant disciplines found in the MES program serves as a valuable complement to the MPA’s leadership education. The ubiquity of environmental policy issues across all parts of the public and non-profit sectors makes this area of study relevant for our students, who can then go on to careers where they may demonstrate their expertise in environmental policy, resource management, and the Urban Environment. Additionally, the multi-disciplinary nature of the MES degree exposes MPA students to faculty and students with similar interests in environmentally related topics throughout the Penn community.

Application and Admissions Procedures

Students wishing to participate in this program must apply separately to each program. When applying, the student should indicate on each separate application that they are applying to the MES/MPA dual degree program. The applications will be reviewed separately by the admissions committees for each program. Acceptance into one program of the Dual degree does not guarantee acceptance into the other program.

Schedule and Credit Distribution

The MES/MPA dual degree program is designed to be completed in two years including one summer semester (5 semesters total). Over the two years students will be in residence at the Fels Institute of Government for two semesters and complete a minimum of 8 credit units (CUs), including the core. The MES/MPA student is in residence in the Department of Earth and Environmental Science for three semesters, at which time he/she completes a minimum of 9 CUs of courses that qualify for the MES degree. Of the nine CUs taken in MES, the MPA will accept four at the graduate level, bringing the dual degree student to the minimum 12 CUs required for the MPA degree. Of the eight CUs taken in the MPA, MES will accept three at the graduate level, bringing the dual degree student to the minimum 12 CUs required for the MES degree. This standard format reduces the typical residency for the two programs from seven to six semesters and reduces the total required CUs from 24 to 17. The timeline below has been designed by the faculties of both MPA and MES and should be followed unless express permission is obtained from both program directors.
### Detailed Schedule

<table>
<thead>
<tr>
<th>Semester</th>
<th>Home Program</th>
<th>Recommended Courses</th>
<th>Total MES cu’s</th>
<th>Total MPA cu’s</th>
</tr>
</thead>
</table>
| 1        | MPA (Fall)    | GAFL 621: Economics  
GAFL 703: Statistics  
GAFL 722: Budgeting  
ENVS 601: Proseminar | 0              | 4             |
| 2        | MPA (Spring)  | GAFL 732: Public Management  
GAFL 735: Performance management  
GAFL 783: Public Financial Management  
ENVS Foundation Course | 0              | 4             |
| 3        | MES (summer)  | 1 MES Concentration course                                                             | 1              | 0             |
| 4        | MES (Fall)    | GAFL 631: Politics  
ENVS Foundation Course  
ENVS Foundation Course  
ENVS: Research Methods Course | 4              | 0             |
| 5        | MES (Spring)  | GAFL 589: Policy Development  
ENVS Foundation Course  
ENVS Concentration Course  
ENVS 699: Capstone | 4              | 0             |

**Total=** 9 8

### Notes: Double counts for the MES are taken in semesters 1 or 2. Double Counts for MPA are taken in semesters 3, 4 or 5

### Special Rules for MES/MPA Dual Degree Students

- All 9 CUs taken while MES is the primary program must be taken in SAS. Courses taken outside of SAS, while MES is the primary program, cannot be counted toward the 9 cu’s for the MES degree.
- MES/MPA students must declare a concentration in Environmental Policy, Urban Environment, Resource Management, or Environmental Sustainability.
- MES/MPA students must take all foundation courses in the sciences.
- The Capstone project should combine the expertise gained in the MPA program with the environmental knowledge gained from the MES program.

### The Curriculum
Fels Core Curriculum

Core Requirements
- GAFL 589: Policy Development
- GAFL 621: Economic Analysis in the Public Sector
- GAFL 631: Politics, Policy & Public Service
- GAFL 703: Statistics for Public Leadership
- GAFL 722: Budgeting and Financial Management for Public and Nonprofit Entities
- GAFL 732: Public Management
- GAFL 735: Performance Management
- GAFL 783: Public Financial Management

Four Elective courses (to be selected from approved list, see Fels Academic advisor for list)

MES Curriculum

Required Courses
- ENVS 601 – Proseminar: Contemporary Issues in Environmental Studies
- ENVS – Research Methods Course
- ENVS 699 – Capstone Seminar

Four Foundation courses:

Chosen from the following science courses (substitutions with permission from an MES Academic Advisor):

- ENVS 507 – Wetlands
- ENVS 605 – Bioremediation
- ENVS 609 – Creating Gateways to the Land with Smarter Conservation
- ENVS 610 – Regional Field Ecology
- ENVS 626 – History and Science of Climate Change
- GEOL 503 – Earth Systems & Earth Hazards
- GEOL 411 – Soil Science
- GEOL 528 – Aqueous Geochemistry
- GEOL 611 – Field Study of Soils
- GEOL 652 – Physical Geology for Environmental Professionals
- GEOL 653 – Introduction to Hydrology

Five Concentration courses:
Two CU’s from the MES program should be selected from the approved course lists for the appropriate concentration and in conjunction with the concentration advisor. Three CU's double counted from the MPA will count toward the remaining concentration courses chosen from the lists below:

**Concentration in Environmental Policy**

- GAFL 589 Policy Development
- GAFL 631 Politics, Policy, and Public Service
- GAFL 732 Public Management
- GAFL 748 Foundations and Grant Management
- GAFL 761 Lobbying
- Others with approval by Academic Advisor

**Concentration in Resource Management**

- GAFL 520 Nonprofits and Social Entrepreneurism
- GAFL 521 Fundraising for Nonprofit Organizations
- GAFL 732 Public Management
- GAFL 748 Foundations and Grant Management
- GAFL 749 Leading Nonprofit Organizations
- GAFL 761 Lobbying
- Others with approval by Academic Advisor

**Concentration in Urban Environment**

- GAFL 532 Big City Politics: How to Pass Municipal Legislation
- GAFL 569 The Politics of Housing and Urban Development
- GAFL 589 Policy Development
- GAFL 631 Politics, Policy, and Public Service
- GAFL 749 Leading Nonprofit Organizations
- Others with approval by Academic Advisor

**Concentration in Environmental Sustainability**

Student must work with the Director of the MES program to develop an appropriate set of courses for the concentration.

**IV. MES/JD Dual Degree with the Law School**
Overview
Students in this dual degree will have the opportunity to earn both the MES and JD degrees in three years (more on the sequencing of these years follows, below). Students in this program will be prepared to assume positions of leadership in environmental law and policy making in both the public and private sector.

Application and Admissions Procedures

Students will apply independently to each degree through each school’s specified admission process. The Law School and the School of Arts & Sciences (SAS) will make independent judgments about each candidate. Students may use LSAT scores (in lieu of the MES GRE requirement).

Applicants will have two options to apply for the Dual degree program:

1. They may make contemporaneous applications to both programs prior to being accepted to either, or
2. They may apply to the Masters program in the first semester of the Law program for Spring admission.

Schedule and Credit Distribution

In order for a student to receive both degrees, he or she must complete the independent degree requirements of each program.

For Law
Law students must complete a minimum of 89 credits, 55 hours of which must be advanced credit completed in the second and third years of Law study. Students in the dual program may apply twelve credits (four 1 cu courses)\(^1\) from the MES program toward that requirement, reducing their credit requirement to 43 credits. These four courses are the total number of non-Law courses that a Law student can take in other departments of the University. Law students enrolled in the dual program are not eligible to participate in Study Abroad Programs.

Students must also satisfy the *pro bono* requirement of the Public Service Program and fulfill their senior writing and professional responsibility

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\(^1\) A note on classes and credits: the Law School operates, in order to comply with accreditation standards, on a credit hour basis while courses in the MES program are typically worth 1.0 credit units (some ½ semester courses may be worth 0.5 credit units). In converting between the two programs, a 3 sh Law course will count as 1.0 course units (or cu) in the MES program, and a 1 cu course in MES will be worth three credit hours (3 sh) at the Law School.
requirements (more on these requirements can be found in the Law Student Guide to Policy and Procedures).

For the Masters of Environmental Studies program
MES students must complete a minimum of 12 course units (cu’s). Students in the dual program may apply 3 CU’s (9 sh) from the JD program toward that requirement, reducing their credit requirement to 9 cu’s. These three courses must be pre-approved in the concentration requirement by the MES Faculty Curriculum Committee.

Detailed Schedule
The dual degree may be earned in one of the following two sequences:

Sample Curriculum for students accepted into both programs simultaneously:
NOTE: Number of sh for Law courses will vary each semester based on student’s focus, available courses, etc.

<table>
<thead>
<tr>
<th>Year</th>
<th>Summer</th>
<th>Fall</th>
<th>Spring</th>
<th>JD Credits</th>
<th>MES Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 cu’s MES</td>
<td>16 sh Law</td>
<td>13sh Law ENVS 601* (3sh)</td>
<td>32</td>
<td>4 (1 cu double count)</td>
</tr>
<tr>
<td>2</td>
<td>2 cu’s MES</td>
<td>12 sh Law 1 MES (3sh)</td>
<td>10 sh Law 1 MES (3sh)</td>
<td>28</td>
<td>6 (1 cu double count/semester)</td>
</tr>
<tr>
<td>3</td>
<td>12 sh Law 1 MES (3sh)</td>
<td>14 sh Law ENVS 699 (does not count for JD)</td>
<td>29</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits= 89 12

*ENVS 601 substitutes for non-regulatory general elective
For students accepted to MES after first semester of Law:

NOTE: Number of sh for Law courses will vary each semester based on student’s focus, available courses, etc.

<table>
<thead>
<tr>
<th>Year</th>
<th>Summer</th>
<th>Fall</th>
<th>Spring</th>
<th>JD Credits</th>
<th>MES Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>16 sh Law</td>
<td>13 sh Law</td>
<td>32</td>
<td>2 (1 cu double count)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ENVS 601* 3 sh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4 cu’s MES</td>
<td>12 sh Law 1 MES (3sh)</td>
<td>10 SH 1 MES (3sh)</td>
<td>28</td>
<td>8 (1 cu double count/semester)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>12 sh Law 1 MES (3sh)</td>
<td>14 sh Law ENVS 699 (does not count for JD)</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>89</td>
<td>12</td>
</tr>
</tbody>
</table>

*ENVS 601 substitutes for non-regulatory general elective

**Special Rules for MES/JD Dual Degree Students**

Law School tuition is paid when the student is taking only Law courses and MES tuition is paid in the summer sessions when the student is taking only MES courses. In other years, while the student is in residence at the Law School and taking MES courses, students pay Law School tuition plus a Program fee to MES to be determined by SAS annually.

Penn Law students will be charged for any courses taken in MES during the academic year (that is, not in the summer sessions) over and above the four courses that are countable toward the JD degree.

Students register for courses in one program in that program’s registration period and according to that program’s registration rules and procedures. Students must be aware of the differences in these procedures:

Students register for Law courses through the Law School’s standard registration system. Students register for MES courses in PennInTouch during the University’s registration period. These registration periods are typically held at the same time for the spring semester (in the fall), but will require student action in the two systems.
Law registration for the fall semester takes place in the summer, after fall semester registration in SAS, requiring the student to carefully consult with both schools about schedule. Oftentimes, students are able to resolve any issues which arise due to the registration differences during the drop/add period. The timing and location of course scheduling must also be considered so that students are best able to attend all classes.

V. MES/Master of Public Health with the Perlman School of Medicine

Overview
Students in this dual degree will have the opportunity to earn both the MES and Master of Public Health (MPH) degrees in three years (more on the sequencing of these years follows, below). This multi-disciplinary approach which ranges from air pollution and geographic mapping to addressing complex and ever-changing legal regulation expands the range of skills and knowledge that students are able to develop in the field of environmental health.

Application and Admissions Procedures
Students wishing to participate in this program must apply separately to each program. When applying, the student should indicate on each separate application that they are applying to the MES/MPH dual degree program. The applications will be reviewed separately by the admissions committees for each program. Acceptance into one program of the Dual degree does not guarantee acceptance into the other program.

Schedule and Credit Distribution
The MES/MPH student will be in residence at the Medical School for three semesters at which time he/she would complete the minimum 10 credit units (CUs) of PUBH pre-fix courses, including the core. The MES/MPH student would be in residence at SAS for three semesters, at which time he/she would take 9 CUs of courses that qualify for the MES degree. Of the nine CUs taken at SAS, the Medical School will accept four at the graduate level, bringing the dual degree student to the minimum 14 CUs required for the MPH degree. MES will accept three PUBH CUs, to bring the student to the minimum 12 CUs required for the MES degree. This standard format reduces the typical residency for the two programs from seven semesters to six semesters and the total CU’s from 26 CUs to 19 CUs.
### Detailed Schedule

**Dual Degree Proposed Time Line**  
Students may start in either program, thus two different suggested timelines are detailed below.

**MES Start** (Green highlighted courses are double counted in the MPH program; Blue highlighted courses are double counted in the MES program)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Home Program</th>
<th>Recommended Courses</th>
<th>Total MES cu’s</th>
<th>Total MPH cu’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MES</td>
<td>ENVS 601, ENVS 622, ENVS 624</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>MPH</td>
<td>PUBH 501, PUBH 502, PUBH 503, Elective 1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>MES</td>
<td>ENVS 541, ENVS 631, ENVS 616</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>MPH</td>
<td>PUBH 504, PUBH 506, Elective 2</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>MPH</td>
<td>PUBH 505, PUBH 508-1, Elective 3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>MES</td>
<td>GEOL 618, ENVS 632, ENVS 699</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total=</strong></td>
<td><strong>12</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

**MPH Start** (Green highlighted courses are double counted in the MPH program; Blue highlighted courses are double counted in the MES program)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Home Program</th>
<th>Recommended Courses</th>
<th>Total MES cu’s</th>
<th>Total MPH cu’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MPH</td>
<td>PUBH 501, PUBH 502, PUBH 503, Elective 1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>MES</td>
<td>ENVS 601, GEOL 618, ENVS 632</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>MES</td>
<td>ENVS 541, ENVS 631, ENVS 624</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>MPH</td>
<td>PUBH 504, PUBH 506, Elective 2</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>MPH</td>
<td>PUBH 505, PUBH 508-1, Elective 3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>MES</td>
<td>ENVS 616, ENVS 622, ENVS 699</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
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</table>
Sample Curricula

MPH Core Curriculum

**Required Courses**
- PUBH 501 – Intro to Biostatistics
- PUBH 502 – Intro to Principles and Methods of Epidemiology
- PUBH 503 – Environmental & Occupational Health
- PUBH 504 – Behavioral & Social Sciences in Public Health
- PUBH 505 – Health Policy & Administration
- PUBH 506 – Methods for Public Health Practice
- PUBH 507 – Public Health Law & Ethics
- PUBH 508 – Capstone Seminar (2 CUs)

MES Core Curriculum

**Required Courses**
- ENVS 601 – Proseminar: Contemporary Issues in Environmental Studies
- ENVS 541 – Modeling Geographic Objects
- ENVS 699 – Capstone Seminar

**Four (4) Foundation courses**
- ENVS 622 - Environmental Enforcement
- ENVS 631 - Environmental Regulation
- GEOL 618 - Fundamentals of Air Pollution

Substitutions with permission

**Five (5) Concentration Courses in Environmental Health**
- PUBH 501 - Biostatistics
- PUBH 502 – Intro to Principles and Methods of Epidemiology
- PUBH 503 – Environmental & Occupational Health
- ENVS 616 - Risk Assessment
- ENVS 624 - US Environmental Policy-An Analysis of NEPA

Substitutions with permission

**The Capstone Project**

At the beginning of the second year of the program, each student undertakes a capstone project, an independent, research exercise required for both programs. Students are not required to write two separate capstones, but instead may do research on the same topic and write a capstone on that topic with a health emphasis for the MPH program and an environmental emphasis for the MES program.
Special Rules for MES/MPH Dual Degree Students

- All 9 CUs taken while MES is the primary program must be taken in SAS. Courses taken outside of SAS, while MES is the primary program, cannot be counted toward the 9 cu’s for the MES degree.
- Both programs require a Capstone project, but students may combine the expertise gained in both programs to write a single capstone.

VI Multi-Master's Degree in International Environmental Management

Overview

The central purpose of this program is to bring together highly qualified individuals from France, China, and the United States with a variety of master’s degrees in a unique and rigorous program that will prepare them to manage complex international environmental challenges.

Advanced students in the MES program can apply for admission to this multi-master’s degree program in International Environmental Management. Upon completion of their studies, students will receive a Mastère Spécialisé degree in Environmental Management from Mines Paris Tech (formerly Ecole des Mines de Paris) in France and a Master of Engineering degree from Tsinghua University in China, in addition to the Master of Environmental Studies degree from the University of Pennsylvania.

Application and Admissions Procedures

Students wishing to participate in this program must first apply and be accepted into the MES program. The student must then complete 8 CUs of MES courses. In the spring of the year the student wishes to participate in the Mines Paris Tech program the student must apply to that program through Mines Paris Tech. Each application is reviewed separately by the admissions committees for each program. Acceptance into the MES program does not guarantee acceptance into the Multi Masters program, but it is a prerequisite for acceptance in the Multi Masters Program.

Schedule and Credit Distribution

The Multi Masters degree in Environmental Management is designed to be completed in two and a half years including one summer semester (6 semesters total). Over the two and a half years students will be in residence at the University of Pennsylvania for the first two semesters and complete a minimum of 8 credit units (CUs), including the core. The Multi Masters student is in
residence at the Franco-Chinese Center of Environment and Energy at Tsinghua University for one semester (September to December), at which time he/she completes all requirements for either a Masters Degree or a certificate in Environmental Engineering (depending on student’s academic background). Then the student travels to Mines Paris Tech for one semester (January to May), at which time he/she completes all requirements for a Post Masters Degree in International Environmental Management. The student will then participate in a 4 to 6 month internship, which will be completed by December of that year. The student will write a report on the results of this internship and this report will serve as the Capstone for the MES program and complete the requirements for the Mines Paris Tech degree. Two CUs of credit will be transferred from Mines Paris Tech to the MES program and two CUs of credit will be transferred from Tsinghua University to the MES program completing the 12 CU requirement for the MES program.

Unlike the other programs described in this handbook, students participating in this program must apply to and be accepted to another University (Mines Paris Tech). Once accepted, the student is subject to the rules and regulations of Mines Paris Tech as well as tuition and fees there. Penn will maintain the student’s status as full time for purposes of loan deferment and health insurance, but the student is responsible for all issues related to tuition, housing, transportation, visas, and obtaining the internship.
## Detailed Schedule

<table>
<thead>
<tr>
<th>Semester</th>
<th>Home Program</th>
<th>Recommended Courses</th>
<th>Total MES cu’s</th>
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<tr>
<td>1</td>
<td>MES (Fall)</td>
<td>ENVS 601: Proseminar 3 MES Foundation Courses</td>
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<td>MES (Spring)</td>
<td>1 MES Foundation Course 1 Research Methods Course 2 Concentration Courses</td>
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<td>Mines Paris (Fall)</td>
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<td>4</td>
<td>Mines Paris (Spring)</td>
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**Note:** Students may take courses in the summer between Penn and Mines Paris

## Special Rules for Multi Masters Degree Students

- Eight CUs must be completed in the MES program before a student may participate in the Multi Masters Degree Program. No Incomplete grades or F’s may appear on the student’s transcript when they enter the program and they must have a greater than 3.0 GPA to apply.
- Students must take all foundation courses in the sciences.
- Students must take all courses in SAS
- Students must have a concentration in Environmental Policy or Sustainability
- The Capstone project is based on the internship completed at the end of the program but may not be identical to the report submitted to Mines Paris Tech. Students will work with a Penn advisor to be sure that the capstone is sufficiently different and rigorous.
- At the end of each semester in the second year of the program it is the student’s responsibility to request transcripts from both Tsinghua University and Mines Paris Tech be sent to the MES Director for proper transfer of credit.
- 2 CUs from each program will be transferred to the Penn MES program.
The Curriculum

MES Curriculum

Required Courses

- ENVS 601 – Proseminar: Contemporary Issues in Environmental Studies
- ENVS – Research Methods course

Four Foundation courses:

Chosen from the following science courses (substitutions with permission from an MES Academic Advisor):

- ENVS 507 – Wetlands
- ENVS 605 – Bioremediation
- ENVS 609 – Creating Gateways to the Land with Smarter Conservation
- ENVS 610 – Regional Field Ecology
- ENVS 626 – History and Science of Climate Change
- GEOL 503 – Earth Systems & Earth Hazards
- GEOL 411 – Soil Science
- GEOL 528 – Aqueous Geochemistry
- GEOL 611 – Field Study of Soils
- GEOL 652 – Physical Geology for Environmental Professionals
- GEOL 653 – Introduction to Hydrology

Five Concentration courses:

Students in this program must have a concentration in Environmental Policy or Sustainability. One CU will be taken at Penn in the MES program, 2 CUs will be transferred from Mines Paris Tech, and 2 CUs will be transferred from Tsinghua University.

One additional course

The eighth course taken at Penn through the MES program will be a substitute for the Capstone course and will be chosen within the student’s concentration.
Extended time

If a student fails to submit a completed capstone by August of the second summer of the program, they will be automatically enrolled in Masters Thesis at Penn for the Fall semester. Tuition and fees for the Masters Thesis course will apply in the Fall and the student’s full time status, access to Penn facilities, and Health Insurance Coverage will be maintained.

VI. Sub-matriculation

Overview

Penn Undergraduates may sub-matriculate into the Master of Environmental Studies program. Sub-matriculation allows undergraduate students interested in a career in fields related to environmental issues begin their Graduate career while finishing their undergraduate program. In many cases sub-matriculation allows a student to finish both the undergraduate and graduate program in 5 years. Four courses may be double counted toward both the undergraduate and graduate programs. Interested Penn Undergraduates should meet with both their undergraduate Academic Advisor and the MES Director as early as possible to determine if sub-matriculation is right for them and to confirm eligibility.

Application and Admissions Procedures

Students wishing to participate in the MES sub-matriculation program must be enrolled in one of the undergraduate programs at Penn and may not be in their second semester of senior year. Sub-matriculation applicants must receive permission from their home school before applying to the sub-matriculation program. Students may apply for the MES program between second semester sophomore year and second semester junior year for acceptance no later than first semester senior year. The MES application will be reviewed by the MES admissions committee. Students applying to the sub-matriculation program are not required to submit GRE scores or official transcripts from Penn, but must submit official transcripts from any other college or university the student attended and proof of their undergraduate schools permission to participate in sub-matriculation.

Schedule and Credit Distribution

The sub-matriculation program is designed so that both a Penn BA/BS and an MES can be completed in five years. Over the five years students will be an undergraduate at Penn for four years and complete the minimum credit units (CUs) for their undergraduate degree, typically 32-38 CUs for SAS
undergraduates depending on the student’s major (non-SAS undergraduates should consult with their undergraduate advisor for eligibility and CU requirements). Of the 32-38 CUs taken as SAS undergraduates, MES will accept four graduate level CUs as double counts. The sub-matriculated student will be in residence as a graduate student in the MES for two semesters (one year), at which time he/she completes a minimum of 8 CUs that qualify for the MES degree. This standard format reduces the typical residency for the two programs from twelve to ten semesters and reduces the total required CUs from 44-50 to 40-46 depending on the student’s major. The timeline below has been designed by the faculty of SAS and should be followed unless express written exemption is obtained from the program director and the undergraduate dean prior to the start of the 2nd semester in the MES program.

**Detailed Schedule**

**Year 1-4**

Primary Program = undergrad
Undergraduate Courses 4 CUs
Up to 4 graduate level courses

**Year 5 (Student has obtained undergraduate degree)**

Fall Semester (Primary Program = MES)
4 MES Courses 4 CUs

Spring Semester (Primary Program = MES)
4 MES Courses 4 CUs

**Special Rules for Sub-matriculated Students**

- Students may enter the MES program as sub-matriculates between their first semester junior year and first semester senior year. Thus students may apply as early as second semester sophomore year and as late as second semester junior year.
- Students about to enter their last semester of their undergraduate career at Penn are not eligible for sub-matriculation, but may apply for regular admission to the MES. No double counting of courses will be allowed in these cases.
- Students applying to the program must have a cumulative minimum GPA of 3.2, but higher GPA’s are strongly recommended.
• Students are strongly encouraged (but not required) to take ENVS 200 Introduction to Environmental Analysis before sub-matriculation.
• All 8 CUs taken while MES is the primary program must be taken in the School of Arts and Sciences (SAS) and graduate level tuition will apply. Courses taken outside of SAS, while MES is the primary program, cannot be counted toward the 8 cu’s for the MES degree.
• Only four graduate level courses from the student’s undergraduate transcript may be used for the MES degree. The other eight courses required for the MES degree must be taken after the student has received their undergraduate degree.
• A sub-matriculation application must be submitted and approved by the student's undergraduate school office and the director of the MES prior to enrollment in the MES program.
• Students in schools other than Arts and Sciences (College or LPS) should talk to their academic advisors to determine if additional forms need to be completed.

Details about Course Double Counts

• Double counted courses must be graduate level (typically numbered 400 or above) and must be approved by both the undergraduate and graduate academic advisors for their respective programs.
• Up to four (4) courses taken prior to sub matriculation may be double counted with the approval of both the undergraduate and graduate academic advisors.
• Double counted courses may be from any school at Penn. However, they must be graduate level, appropriate for the MES curriculum, and approved by both the undergraduate and MES academic advisors.

The Curriculum

Sub-matriculated students follow the standard curriculum as outlined in the MES Student Handbook, but must follow the guidelines detailed above. Sub-matriculates may choose any concentration. Refer to the special section on sub-matriculation in the Student Handbook for information on how to designate double counted courses and other information pertinent to undergraduate students.