

State University of New York
College of Environmental Science and Forestry

GRADUATE PROGRAM
IN
ENVIRONMENTAL SCIENCE

Master of Professional Studies
(M.P.S.)
Degree

HANDBOOK

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I. INTRODUCTION

Welcome to the Graduate Program in Environmental Science (GPES). We are delighted that you have joined a unique set of graduate students, faculty, and researchers who share a deep concern for the development and application of multidisciplinary approaches to the stewardship of our natural and built environments. This Handbook is intended as a primary guide to GPES for both students and faculty.

The operation of GPES is moderately complex. This is a result of the diversity of student backgrounds, the participation of faculty from across the College and Syracuse University, and the curricula design, which balances a Core, with Area-of-Study depth, and individualized synthesis.

Hierarchically, the State Education Department and S.U.N.Y. establish basic policy for all graduate programs. Within E.S.F, a comprehensive set of Graduate Policies has been adopted by the College Faculty. These are published in the College Catalog. The policies and the procedures, which implement College policy, can be found at <http://www.esf.edu/graduate/policies.htm>. These are available for review with your major professor. Internally GPES has evolved a number of specific policies, procedures, and guidelines for the effective delivery of the program.

GPES' primary vehicle for engaging multidisciplinary subjects is the **Area of Study**. These represent the loci of faculty research and scholarship interests which have been formally approved by the Faculty. Minimum thresholds include three active faculty including a coordinator, and five graduate E.S.F. courses. Areas of Study are periodically revised to reflect evolving interests and resources. Areas of Study are structured as standing subcommittees, with a coordinator, and participating Major Professors. Subcommittees may have student members.

All students in GPES are admitted directly into an Area of Study. Students are strongly encouraged to network with their peers and to actively participate in their Area of Study.

The GPES web page provides a link to the areas of study and their participating faculty at <http://www.esf.edu/environmentalscience/graduate>.

II. REQUIREMENTS FOR THE M.P.S. DEGREE

The ESF Catalog description provides the basic framework of graduation requirements. To facilitate detailed program planning and graduation documentation GPES uses a Plan Sheet. Each Major Professor keeps an updated version in their advising file, and each student is encouraged to keep an updated personal copy. A completed Plan Sheet must be attached to the College's Form 3B when submitted for approval by the Chair. Plan sheets are available in the Graduate Program in Environmental Science office. A copy of the Plan Sheet follows this description.

1. Prerequisites.

Deficiencies in undergraduate level Micro Economics or Environmental Economics, Ecology, or Statistics are identified in the letter of admission. If not completed prior to matriculation these **must** be taken as co-requisites during the first two semesters of residence. Undergraduate or graduate courses may be taken to satisfy deficiencies. Undergraduate courses are not included in Grade Point Averages, and do not count toward satisfying the minimum number of required graduate credit hours. Graduate courses will be included in Grade Point Averages. Graduate level deficiency courses **may not** be used in a Plan Sheet for Core, or Area of Study requirements.

2. Advanced Standing.

- a. Course transfers. A maximum of six graduate credit hours with a grade of B or above that have not been applied to another degree may be transferred via Petition. The Petition must include an attached syllabus, and a justification of how the courses are to be included on the student's Plan Sheet. Petitions for course transfers are submitted following matriculation.
- b. Credit for prior experience. Applicants with a minimum of three (3) years of post-baccalaureate full-time professional experience directly related to the intended area of study may apply for 6 credit hours of advanced standing in the program. Partial credit for experience cannot be awarded. When awarded for prior work experience, the 6 credit hours are applied toward the Synthesis requirement.

3. Concurrent Degree.

Concurrent degree students may "double-count" 8 cr. hrs. toward their M.P.S. degree.

4. Program Requirements.

The Master of Professional Studies (MPS) degree is a 39 credit hour experience aimed at professional applications of environmental knowledge.

- a. Core. Required course work: A total of 21 credit hours with the following distribution: 9 credit hours of applied social sciences, 6 credit hours in environmental science, and 6 credit hours in methods course emphasizing applications of technical knowledge.
- b. Area of Study: A minimum of 12-15 credit hours of course works in the chosen area of study, as determined by the major professor and study area faculty. Students select a study area at the time of application for admission into the program. Five study areas are available to MPS students: (i) Environmental Policy and Democratic Processes, (ii) Environmental and Community Land Planning, (iii) Water and Wetland Resources, (iv) Environmental Systems and Risk Management and (v) Environmental Communication and Participatory Processes.

- c. Synthesis. Students select either an Internship 3-6 credit hours or prepare a synthesis paper (3 credit hours). All students must present a capstone seminar in their final semester. No terminal comprehensive examination is required. See Appendix B for internship guidance.

MPS PLAN SHEET

Student: _____ Semester Entered: _____
 Phone: _____ Email: _____ Area: _____

Semester:

Course	Cr. Hrs.	Grade GPA	Seminars (2)	Pre-Req.	App. Soc. Sci.	Env. Sci.	Methods	Study Area	Synth.
Totals:									
Unmet Requirements:	/39	/3.0min	/2	/0-9	/9	/6	/6	/12	/6

Semester:

Course	Cr. Hrs.	Grade GPA	Seminars (2)	Pre-Req.	App. Soc. Sci.	Env. Sci.	Methods	Study Area	Synth.
Totals:									
Unmet Requirements:	/39	/3.0min	/2	/0-9	/9	/6	/6	/12	/6

Semester:

Course	Cr. Hrs.	Grade GPA	Seminars (2)	Pre-Req.	App. Soc. Sci.	Env. Sci.	Methods	Study Area	Synth.
Totals:									
Unmet Requirements:	/39	/3.0min	/2	/0-9	/9	/6	/6	/12	/6

Semester:

Course	Cr. Hrs.	Grade GPA	Seminars (2)	Pre-Req.	App. Soc. Sci.	Env. Sci.	Methods	Study Area	Synth.
Totals:									
Unmet Requirements:	/39	/3.0min	/2	/0-9	/9	/6	/6	/12	/6

PROGRAM ADMINISTRATION

Student: _____ Semester Entered: _____

Degree: Ph.D. M.S. M.P.S. Area of Study: _____

Address: _____

Phone: _____ Email: _____

Deficiencies: _____ Semester Remedied: _____

Administrative Requirements Completed:

3B Form Yes Date: _____

Thesis/Internship Proposal: Yes Date: _____

Title: _____

Steering Committee:

1) _____ Phone _____
2) _____ Phone _____
3) _____ Phone _____
4) _____ Phone _____

Examiners (M.S., Ph.D. only):

1) _____ Phone _____
2) _____ Phone _____
3) _____ Phone _____
4) _____ Phone _____

Defense/Exam Chair (M.S., Ph.D. only):

_____ Phone _____

Capstone Seminar: Yes Date: _____ Time and Location: _____

TA/RAs Held:

Semester	_____	Course/Project	_____	Supervisor	_____
Semester	_____	Course/Project	_____	Supervisor	_____
Semester	_____	Course/Project	_____	Supervisor	_____
Semester	_____	Course/Project	_____	Supervisor	_____
Semester	_____	Course/Project	_____	Supervisor	_____
Semester	_____	Course/Project	_____	Supervisor	_____

III. RESOURCES

The Graduate Program in Environmental Science has limited staff, facility, and financial resources. Over the past few years we have developed management approaches for their effective and equitable utilization.

A. Graduate Program in Environmental Science (GPES) Office is 134 Baker Laboratory.

The office has two primary segments: Production Staff, Records and Communications. The Office maintains files (unofficial) of student records, folders of job and research announcements, course syllabi, and internship requests. It maintains a collection of GPES Thesis, Dissertations, Research Proposals, and Internship Reports, which are available for reference.

Most students at some time during their studies encounter problems of a personal or academic nature for which they require assistance. An early full discussion of the situation and options is often the key to their resolution. Major Professors and the GPES Director are all available to facilitate this process. Office staff can assist in making appointments as necessary.

B. GPES Mailboxes - Outside 134 Baker Laboratory

These are the primary mechanism for internal College and Faculty communications. Students should make it a practice to visit their box at least once a week. The mailboxes should not be used to receive U.S. Mail, and the GPES Office Staff cannot receive personal phone messages for students.

C. Office Space

It has been the general practice of the College that graduate students are provided with a desk space on an as-need basis. Because of limited facilities and the flux of students in residence, the assignment of such space usually takes a few weeks each fall. Students should first ask for space available from their major professor. GPES has some space for available in 218 Marshall Hall and 406B Bray Hall. The Office Staff maintains a list of requests and vacancies. Periodically, GPES arranges with other Faculties to use surplus space on a semester-by-semester basis.

D. Assistantships

There are two basic forms of assistantships, Graduate (GA), and Research (RA). GA's are awarded by the College each year based on Faculty recommendations. They are primarily used for Teaching Assistantships in undergraduate and graduate courses. In 2010-2011 GPES had 12 semester positions for its approximately 75 graduate students. Each spring students who will be returning in the fall are notified by the GPES Director of the projected GA allocation and requested to formally apply. Incoming admitted students are also included in the selection process. A faculty committee prioritizes the applications for administrative action.

As a graduate-research College ESF is involved in numerous externally funded projects most of which involve RA's. Each project is managed by a Principal Investigator who has the responsibility of selecting staff. GPES has no direct involvement in this process. Students interested in RA's should discuss opportunities with their Major Professor. Throughout the year the Graduate Office and Research Office circulate research, fellowship, and internship

announcements. Students should periodically check their mailboxes, the appropriate ES folders, and the ES bulletin board.

The Edna Bailey Sussman Fund provides stipends to support graduate student summer internship experiences. The Fund has supported approximately 12 ESF students per year, about one-quarter of whom have been GPES students. Sussman supports a broad range of interest areas, from environmental policy, regulation and communication to various environmental sciences. Sussman applications are treated competitively; awards are usually in the range of \$4,800 for full-time internship employment. Applications must be filed by the annual application deadline, usually in early March. Awards are announced in early May. Proposal guidelines are available in February from the Office of Instruction and Graduate Studies located in 227 Bray Hall.

APPENDIX A.1
MASTER OF PROFESSIONAL STUDIES (M.P.S.) DEGREE
ENVIRONMENTAL COMMUNICATION & PARTICIPATORY PROCESSES
STUDY AREA

Advising Guide

General Requirements. The minimum credit hours required for the MPS degree are:

	Credit Hours
2 Environmental Science Seminars	0
Applied Social Science	9
Environmental Science	6
Methods	6
Area of Study	12
Synthesis	6
Total	39

Environmental Science Seminar. All students are required to take two (2) semesters of ENS 797 Environmental Science Seminar or, with Major Professor permission, appropriate seminars in other Faculties at the College or Syracuse University (the latter for credit only). ENS 797 is normally completed as an Audit, but at times may be taken for credit if offered. Credit hours when awarded may be applied against the Applied Social Science requirement.

Applied Social Science. 9 credit hours should be selected from the following course list. In some cases, other appropriate courses may fulfill this requirement in the larger context of a student's program. These substitutions require approval by the major professor.

- ANT 683 Social Movement Theory
- EST 608 Environmental Advocacy Campaigns and Conflict Resolution
- EST 626 Concepts and Principles of Sustainable Development
- FOR 665 Natural Resources and Environmental Policy
- GEO 558 Development and Sustainability
- IST 607 • Government and Information
- IST 642 • Electronic Commerce
- IST 643 U. S. Federal Information Policy
- IST 654 Information Systems Analysis Concepts and Practices
- LAW 716 Environmental Law
- PPA 709 Public Organizations and Management
- PPA 730 Problems in Public Administration
- PPA 753 Executive Leadership and Policy
- PSC 705 Science and Public Policy

- Offered based on student interest.

Environmental Science. 6 credit hours, frequently selected from the following course list:

EFB 518 Systems Ecology
EFB 600 Toxic Health Hazards
EFB 611 Topics in Environmental Toxicology
EFB 796 Special Topics: Environmental Forest Biology
ESC 525 Energy Systems
ESC 535 Renewable Energy Systems
ESC 622 Energy Markets and Regulation
FOR 540 Watershed Hydrology
FOR 642 Watershed Ecology and Management
FOR 680 Urban Forestry

Methods. 6 credit hours, usually selected from the following:

PPA 722 Quantitative Analysis
SOS 620 Interpersonal Conflict Resolution Skills
SOS 621 Mediation: Theory and Practice
SOS 622 Negotiation: Theory and Practice
SOS 623 Leadership: Theory and Practice
SOS 624 Conflict Resolution in Groups
SOC 614 Introduction to Qualitative Research

Area of Study. 12 credit hours. Area of Study course work is chosen in consultation with the Major Professor and Steering Committee. At least 6 credit hours of ENS coursework must be completed from the list of courses provided below, excluding any independent studies courses (ENS 798). The other six credit hours may be selected from the courses listed below or from other appropriate courses that become available.

EST 608 Environmental Advocacy Campaigns and Conflict Resolution
EST 612 Environmental Policy and Governance
EST 626 Concepts and principles of Sustainable Development
EST 635 Public Participation and Decision Making: Theory and Application
EST 650 Environmental Perception and Human Behavior
FOR 690 Seminar and Workshop on Natural Resources Policy and Management
EFB 617 Perspectives on Interpretive Design

MIS 745 Decision Support Technologies
MAR 741 Marketing Community and Public Service Agencies
SHR 703 Organizational Process Consultation Skills
ANT/LIN/SOC 571 Topics in Sociolinguistics
ANT 652 Cultural Aspects of Public Policy
ANT/674 Culture and Folklore
ANT 675 Culture and Disputing

Synthesis. 6 credit hours completed as ENS 898 Professional Experience or as Directed Electives, determined in consultation with the Major Professor. See the program Handbook for internship information. Directed electives are done in consultation with a professor.

Other Requirements. In addition to course and credit hour requirements, students are required to:

1. File a Form 3B (Academic Plan), attaching a program Plan Sheet, with the Office of Instruction and Graduate Studies (227 Bray Hall) by the end of the second semester of full-time study.
2. Form a Steering Committee of the Major Professor and one additional faculty member before undertaking the Synthesis requirement. Form 2A is available in 134 Baker Laboratory.
3. Offer a Capstone Seminar, reporting either on planned or completed Synthesis activity.

Note: No written or oral comprehensive examination is required.

APPENDIX A.2
MASTER OF PROFESSIONAL STUDIES (M.P.S.) DEGREE
ENVIRONMENTAL POLICY AND DEMOCRATIC PROCESSES
STUDY AREA

Advising Guide

General Requirements. The minimum credit hours required for the degree are:

	Credit Hours
Environmental Science Seminar	0
Applied Social Science	9
Environmental Science	6
Methods	6
Area of Study	12
Synthesis	6
Total	39

Environmental Science Seminar. All students are required to take two (2) semesters of ENS 797 Environmental Science Seminar or, with Major Professor permission, appropriate seminars in other Faculties at the College or Syracuse University (the latter for credit only). ENS 797 is normally completed as an Audit, but at times may be taken for credit if offered. Credit hours when awarded may be applied against the Applied Social Science requirement.

Applied Social Science. 9 credit hours, selected from the following course list:

- EST 608 Environmental Advocacy Campaigns and Conflict Resolution
- EST 612 Environmental Policy and Governance
- EST 626 Concepts and Principles of Sustainable Development
- EST 635 Public Participation and Decision Making
- EST 650 Environmental Perception and Human Behavior

Environmental Science. 6 credit hours, frequently selected from the following course list:

- EFB 516 Ecosystems
- EFB 518 Systems Ecology

- EFB 525 Limnology Practicum
- EFB 600 Toxic Health Hazards
- EFB 611 Topics in Environmental Toxicology
- ESC 525 Energy Systems
- ESC 535 Renewable Energy Systems
- ESC 622 Energy Markets and Regulation
- FOR 642 Watershed Ecology and Management
- FOR 680 Urban Forestry

Methods. 6 credit hours, usually selected from the following:

- APM 635 Multivariate Statistical Methods
- APM 625 Intro to Sampling Techniques
- EFB 518 Systems Ecology

FOR 557 Practical Vector GIS
FOR 558 Advanced Topics in GIS
PPA 722 Quantitative Analysis
PSC 602 Public Policy Analysis Theory and Practice
SOC 614 Introduction to Qualitative Research

Area of Study. 12 credit hours. Area of Study course work is chosen in consultation with the Major Professor and Steering Committee. Generally, this coursework is seen as an extension of coursework begun in the Core, and will be taken from the list of courses below, although other courses at times may be selected. At least 6 credit hours of ENS coursework must be completed from the list of courses provided below, excluding any independent studies courses (ENS 798).

ENS 601 Water Resources Management
EST 608 Environmental Advocacy Campaigns and Conflict Resolution
EST 612 Environmental Policy and Governance
EST 626 Concepts and Principles of Sustainable Development
EST 635 Public Participation and Decision Making
EST 650 Environmental Perception and Human Behavior
FOR 665 Natural Resources and Environmental Policy
FOR 753 Advanced Natural Resource and Environmental Policy
GEO 558 Development and Sustainability
GEO 720 Seminar on Latin America

IST 607 • Government and Information
IST 643 U. S. Federal Information Policy
IST 654 Information Systems Analysis Concepts and Practices

LAW 716 Environmental Law
PPA 709 Public Organization and Management
PPA 730 Problems in Public Administration
PPA 775 Energy, Environment, Resources Policy
PSC 602 Public Policy Analysis Theory and Practice
PSC 705 Science and Public Policy

Synthesis. 6 credit hours, completed as ENS 898 Professional Experience or as Directed Electives, selected in consultation with the Major Professor; see program Handbook for internship information.

Other Requirements. In addition to course and credit hour requirements, students must:

1. File a Form 3B (Academic Plan), attaching a program Plan Sheet, with the Office of Instruction and Graduate Studies (227 Bray Hall) by the end of the second semester of full-time study.
2. Form a Steering Committee of the Major Professor and one additional faculty member before undertaking the Synthesis requirement.
3. Offer a Capstone Seminar, reporting either on planned or completed Synthesis activity.

Note: No Comprehensive Examination is required.

• Offered based on student interest.

APPENDIX A.3
MASTER OF PROFESSIONAL STUDIES (M.P.S.) DEGREE
ENVIRONMENTAL AND COMMUNITY LAND PLANNING
STUDY AREA
Advising Guide

General Requirements. The minimum credit hours required for the degree are:

	Credit Hours
Environmental Science Seminar	0
Applied Social Science	9
Environmental Science	6
Methods	6
Area of Study	12
Synthesis	6
Total	39

Environmental Science Seminar. All students are required to take two (2) semesters of ENS 797 Environmental Science Seminar or, with Major Professor permission, appropriate seminars in other Faculties at the College or Syracuse University (the latter for credit only). ENS 797 is normally completed as an Audit, but at times may be taken for credit if offered. Credit hours when awarded may be applied against the Applied Social Science requirement.

Applied Social Science. 9 credit hours including at least 6 in ENS course work, selected from the following list:

- EST 608 Environmental Advocacy Campaigns and Conflict Resolution
- EST 612 Environmental Policy and Governance
- EST 626 Concepts and Principles of Sustainable Development
- EST 635 Public Participation and Decision Making: Theory and Application
- EST 650 Environmental Perception and Human Behavior
- LSA 652 Community Development and Planning Process
- LSA 696 Special Topics: Community Planning Seminar

Environmental Science. 6 credit hours, frequently selected from the following course list:

- EFB 516 Ecosystems
- EFB 518 Systems Ecology
- EFB 522 Ecology, Resources, and Development (2 credit hrs.)
- EFB 525 Limnology Practicum
- EFB 600 Toxic Health Hazards
- EFB 611 Topics in Environmental Toxicology
- FOR 540 Watershed Hydrology
- FOR 680 Urban Forestry

Methods. 6 credit hours, usually selected from the following:

- EFB 519 Geographic Modeling
- FOR 557 Practical Vector GIS
- FOR 558 Advanced Topics in GIS
- LSA 640 Research Methodology

Study Area Coursework. 12 credit hours. Area of Study course work beyond the Core and Research Methods requirements is chosen in consultation with the Major Professor and Steering Committee. Generally, this course work is seen as an extension of course work begun in the Core, and will be taken from the list of courses below (or from those listed above that are not used to satisfy requirements), although other courses at times may be selected. At least 6 credit hours of ENS/LSA course work beyond that taken in the Core must be completed from the list of courses provided below, excluding any independent studies courses (ENS/LSA 798).

EFB 617 Perspectives on Interpretive Design
CIE 643 Transportation Engineering
ESC 525 Energy Systems
ESC 535 Renewable Energy Systems
ESC 622 Energy Markets and Regulation
EST 550 Environmental Impact Analysis
FOR 540 Watershed Hydrology
FOR 542 Watershed Management
FOR 557 Practical Vector GIS
FOR 558 Advanced Topics in GIS
FOR 665 Natural Resources and Environmental Policy
FOR 676 Ecotourism and Nature Tourism
FOR 678 Wilderness and Wild Land Management
FOR 680 Urban Forestry
GEO 583 Environmental Geographical Information Systems
GEO 705 Theories of Development
GEO 781 Seminar: Cartography
GEO 558 Development and Sustainability
IST 654 Information Systems Analysis
LSA 611 Natural Processes in Planning and Design
LSA 651 Comprehensive Land Planning
LSA 652 Community Development and Planning Process
LSA 681 Cultural Landscape Preservation
PPA 730 Problems in Public Administration

APPENDIX A.4
MASTER OF PROFESSIONAL STUDIES (M.P.S.) DEGREE
WATER AND WETLAND RESOURCES STUDIES
STUDY AREA

General Requirements. The minimum credit hours required for the degree are :

Environmental Science Seminar	0
Applied Social Science	9
Research Methods	6
Area of Study/Environmental Science	18
Synthesis	6
Total	39*

*A minimum of 6 credit hours in ENS course work is required.

Special Note on Academic Background. Students must have appropriate background in chemistry, biology, physics, earth science and computer programming and application. All students should have at least one course in physical water science (e.g., hydrology, geology, hydrogeology, aquatic chemistry, aquatic biology) as well as demonstrated competence in at least one of these aquatic science areas (experience, undergraduate course work, and/or graduate course work). Recommended courses include: (i) Physical Water Science: CIE453, FOR540, FEG340, FOR641, GOL544, and GOL542; (ii) Aquatic Chemistry and Toxicology: CIE551, FCH515, FCH496, GOL652, FCH510, and EFB560; (iii) Aquatic Biology: EFB524 and EFB525; and (iv) Wetlands Science EFB518, EFB542, EFB580 and EFB691.

Environmental Science Seminar. All students are required to take two (2) semesters of ENS 797 Environmental Science Seminar or, with Major Professor permission, appropriate seminars in other Faculties at the College or Syracuse University (the latter for credit only). ENS 797 is normally completed as an Audit, but at times may be taken for credit if offered. Credit hours when awarded may be applied against the Applied Social Science requirement.

Applied Social Science. 9 credit hours. Study Area faculty may indicate which if any courses listed below are particularly recommended, and courses not listed here may be substituted with agreement of Study Area faculty.

ENS 601* Water Resources Management
 EST 608 Environmental Advocacy Campaigns and Conflict Resolution
 EST 612 Environmental Policy and Governance
 EST 626 Concepts and Principles of Sustainable Development
 EST 635 Public Participation and Decision Making
 EST 650 Environmental Perception and Human Behavior
 FOR 665 Natural Resources and Environmental Policy
 LAW 716 Environmental Law
 PPA 709 Public Organization and Management
 PPA 730 Problems in Public Administration
 PSC 705 Science and Public Policy
 IST 654 Information Systems Analysis Concepts and Practices
 IST 607• Governments and Information
 IST 642• Electronic Commerce

* Indicates water resources policy courses.

• Offered based on student interest.

Research Methods. 6 credit hours, usually selected from the following:

APM 510 Statistical Analysis
APM 620 Analysis of Variance
APM 625 Introduction to Sampling Techniques
APM 635 Multivariate Statistical Methods
ERE 550 Introduction to GIS
ERE 552 Fundamentals of Remote Sensing
ERE 563 Photogrammetry I
ERE 642 Water Quality Modeling
EST 605 Qualitative Methods
GEO 583 Environmental GIS
GEO 587 Multivariate Statistical Applications in Geography
LSA 640 Research Methodology
PPA 722 Quantitative Analysis
PSC 602 Public Policy Analysis
SOC 614 Introduction to Qualitative Research

Area of Study. 18 credit hours. Study Area coursework beyond the Core and Research Methods requirements is identified by Study Area faculty and chosen in consultation with the Major Professor and Steering Committee. Frequently recommended courses are:

CIE 525 Environmental Fluid Mechanics
CIE 570 Water and Wastewater Treatment Design
CIE 652 Biological Waste Treatment
CIE 653 Applied Aquatic Chemistry
EFB 516 Ecosystems
EFB 518 Systems Ecology
EFB 525 Limnology Practicum
ENS 607 Wetland Practicum
ERE 643 Water Pollution Engineering
FEG 340 Engineering Hydrology and Hydraulics
FCH 496 Special Problems in Chemistry
FCH 515 Methods of Environmental Chemical Analysis
FOR 557 Practical Vector GIS
FOR 558 Advanced Topics in GIS
EAR 541 Hydrogeology

Synthesis. 6 credit hours, completed as ENS 898 Professional Experience or as Directed Elective, selected in consultation with the Major Professor; see program Handbook for internship information.

Other Requirements. In addition to course and credit hour requirements, students must:

1. Form a Steering Committee of the Major Professor and one additional faculty members by the end of the second semester of full-time study.
2. File a Form 3B (Academic Plan), attaching a program Plan Sheet, with the Office of Instruction and Graduate Studies (227 Bray Hall) by the end of the second semester of full-time study. Students initiate this action in consultation with the Major Professor who files a request to form the committee.
3. Offer a Capstone Seminar on the thesis or project, reporting either on planned or completed synthesis activity.

Note: No Comprehensive Examination is required.

APPENDIX A.5
MASTER OF PROFESSIONAL STUDIES (M.P.S.) DEGREE
ENVIRONMENTAL SYSTEMS AND RISK MANAGEMENT
STUDY AREA

Advising Guide

General Requirements. The minimum credit hours required for the degree are:

	Credit Hours
Environmental Science Seminar	0
Applied Social Science	9
Environmental Science	6
Methods	6
Area of Study	12
Synthesis	6
Total	39

Environmental Science Seminar. All students are required to take two (2) semesters of ENS 797 Environmental Science Seminar or, with Major Professor permission, appropriate seminars in other Faculties at the College or Syracuse University (the latter for credit only). ENS 797 is normally completed as an Audit, but at times may be taken for credit if offered. Credit hours when awarded may be applied against the Applied Social Science requirement.

Applied Social Science. 9 credit hours, selected from the following course list:

- EST 608 Environmental Advocacy Campaigns and Conflict Resolution
- EST 612 Environmental Policy and Governance
- EST 626 Concepts and Principles of Sustainable Development
- EST 635 Public Participation and Decision Making
- EST 650 Environmental Perception and Human Behavior

Environmental Science. 6 credit hours, frequently selected from the following course list:

- EFB 516 Ecosystems
- EFB 518 Systems Ecology
- EFB 525 Limnology Practicum
- EFB 600 Toxic Health Hazards
- EFB 611 Topics in Environmental Toxicology
- ESC 525 Energy Systems
- ESC 535 Renewable Energy Systems
- ESC 622 Energy Markets and Regulation
- FOR 680 Urban Forestry

Research Methods. 6 credit hours, usually selected from the following:

- EFB 518 Systems Ecology
- FOR 557 Practical Vector GIS
- FOR 558 Advanced Topics in GIS
- PPA 722 Quantitative Analysis

SOC 614 Introduction to Qualitative Research

Area of Study. 12 credit hours. Area of Study coursework is chosen in consultation with the Major Professor and Steering Committee. Generally, this coursework is seen as an extension of coursework begun in the Core, and will be taken from the list of courses below, although other courses at times may be selected. At least 6 credit hours of ENS coursework must be completed from the list of courses provided below, excluding any independent studies courses (ENS798):

ENS 601 Water Resources Management
ENS 607 Wetland Practicum
EST 608 Environmental Advocacy Campaigns and Conflict Resolution
EST 612 Environmental Policy and Governance
EST 626 Concepts and Principles of Sustainable Development
EST 650 Environmental Perception and Human Behavior
ERE 550 Introduction to GIS
FOR 665 Natural Resources and Environmental Policy
GEO 558 Development and Sustainability
IST 607 • Government and Information
IST643 U.S. Federal Information Policies
IST 654 Information Systems Analysis Concepts and Practices

LAW 716 Environmental Law
LAW 757 Natural Resources Law
PPA 709 Organizational Theory Public Organization and Management
PPA 730 Problems in Public Administration
PSC 602 Public Policy Analysis
PSC 705 Science and Public Policy
CEN 573 Principles and Design in Air Pollution Control

CIE 554 Principles of Environmental Toxicology
CIE 653 Applied Aquatic Chemistry
EFB 518 Systems Ecology
EFB 610 Ecological Biogeochemistry
ERE 643 Water Pollution Engineering
ERE 785 Scanning Electron Microscopy
FCH 510 Environmental Chemistry I
FCH 511 Environmental Chemistry II
FCH 515 Methods of Environmental Chemical Analysis
FOR 556 **Introduction to Raster GIS Analysis**
FOR 557 Practical Vector GIS
FOR 558 Advanced **Topics in GIS**

Synthesis. 6 credit hours, completed as ENS 898 Professional Experience or as Directed Electives, selected in consultation with the Major Professor; see program Handbook for internship information.

Other Requirements. In addition to course and credit hour requirements, students are required to:

1. Form a Steering Committee of the Major Professor and one additional faculty member before undertaking the Synthesis requirement.
2. File a Form 3B (Academic Plan), attaching a program Plan Sheet, with the Office of Instruction and Graduate Studies (227 Bray Hall) by the end of the second semester of full-time study.
3. Offer a Capstone Seminar, reporting either on planned or completed Synthesis activity.

Note: No Comprehensive Examination is required.

- Offered based on student interest.

APPENDIX B.1

INTERNSHIP REQUIREMENTS

INTRODUCTION

These standards are established to ensure some measure of consistency in the work experience, workload, and performance of Master of Professional Studies degree candidates who elect to complete an internship as partial fulfillment of their degree requirements. They also establish the responsibilities of GPES, the major professor, the sponsor, and the student's steering committee in establishing, monitoring and evaluating the internship.

1. STANDARDS/REQUIREMENTS

- a) The purpose of the internship is to provide an integrative capstone experience. The internship should include an opportunity for the student to exercise individual responsibility and to demonstrate capability. Joint or individual assignments resulting in written reports are extremely desirable.
- b) Internships generally earn six credit hours (6) in the GPES program. Additional credit hours may be earned (12 maximum) in exceptional cases. Total credit hours required for graduation under the internship option are 39 hours, 21 hours are required courses; 12-15 hours for a study area; and six hours for make up or enrichment, in addition to internship credit hours.
- c) The internship experience shall be for a minimum of 30 hours/week, for 14 weeks. Typically the internship should be completed in a single semester of the students second year. A steering committee may approve an earlier internship if the core and at least 3 directly related areas of study courses have been completed.
- d) An internship cannot be undertaken at the place of regular employment of the student.
- e) The internship is ordinarily undertaken at the conclusion of the coursework in the student's program.
- f) The purpose of these requirements is to insure a high quality internship. They are not designed to unduly restrict internship arrangements or to introduce rigidity into the program. It is recognized that at times exceptions to these requirements may be desirable because of special circumstances. Exceptions may be requested through the petition process and will be given favorable consideration providing the objective of a high quality internship is assured by the major professor and the student.
- g) It is desirable, but not required, that the internship be on a paid basis, this insures that all parties are committed to the effort. Inquires should be made to the Curriculum Coordinator for possible sources of financial aid if the sponsor provides no salary.

2. INTERNSHIP PLAN

The student must prepare an internship plan and have it approved by his/her steering committee prior to beginning the internship.

3. MEMORANDUM OF AGREEMENT

- a) A memorandum of agreement must be executed by the student, the sponsor, the major professor and the Director of GPES, before the internship begins. The sponsor may require some additional form of agreement. The original goes to GPES file with copies to the sponsor, major professor, steering committee and student.
- b) The student must be assigned tasks appropriate for entry grade employees at the Masters degree level. The internship should provide detailed experience in the field chosen by the student and agreed to by the student's major professor, committee and employer. Importantly, completion of degree requirements is not based on having a job, but rather on the learning experience gained through the internship.
- c) The memorandum of agreement is not a formal contract; rather it is a communication device to insure that all parties understand what's expected of them.
- d) Any major change(s) from the conditions of the original memorandum of agreement will require the filing of an amended agreement with the appropriate signatures stipulated in part 3(a).

4. MONITORING/SUPERVISION

- a) At least 50% of the student's effort will be of a professional nature, which relates directly to the student's program.
- b) The student will have direct supervision.
- c) The student will have access to documents, meetings, field trips, etc., from which he/she may articulate the broader organizational context.
- d) The anticipated nature of the learning experience will be described in detail in 3b or in an addendum to the agreement, e.g., groundwater modeling, bill drafting, preparation of educational material, designing a facility, analyzing a watershed, doing research, preparing reports, etc.
- e) The sponsor supervisor will oversee the student's activities. A brief written report by the supervisor on the student's work at the mid-point and end of the internship to the Major Professor would be desirable.
- f) If feasible the Major Professor, the supervisor, and the student will meet before the internship commences, at the mid-point, and at the conclusion of the internship, to review the program and to insure communication and understanding between the parties.
- g) The Major Professor should insure that the student has the proper background to undertake the internship.
- h) A bi-weekly report should be submitted to the Major Professor by the student.

5. STUDENT REPORTING

A. Bi-Weekly Progress Reports:

The purpose of these brief (3-5 pages and attachments) professional communications is to provide an opportunity for periodic reflective processing, and to inform Committee members of progress and problems/issues. Many students find that keeping a daily log/diary is helpful both in accomplishing their work and in subsequent writing. Although not required, some systematic form of daily recording is recommended.

Bi-Weeklies are more than a laundry list of activities. They should selectively address those components of the upcoming Internship Report, which includes description of the organization (early Bi-Weeklies), and critical connection to course concepts and methods (later Bi-Weeklies). For the student, a rough mock-up of the Internship Report can be assembled from the Bi-Weeklies. For the faculty, the Bi-Weeklies should provide windows of opportunity to communicate with the student, and to minimize "surprises" in the Internship Report.

6. RESPONSIBILITIES

It is the responsibility of the student to make all arrangements and to insure that all requirements are met.

The Major Professor is responsible for approving the internship program and for oversight of the student's program including assurance that the internship is suitable and worthwhile.

The Steering Committee shall review bi-weekly reports, the draft report and make any appropriate comments and/or recommendations to the student and the Major Professor. The internship report is included as a proper examination area in the student's comprehensive exam.

The College and ESF faculty will assist in helping the student locate an internship opportunity and identifying possible sources of aid.

**APPENDIX B.2
INTERNSHIP AGREEMENT**

MEMORANDUM OF AGREEMENT

The memorandum of agreement is not a formal contract; rather it is a communication device to insure that all parties understand what is expected of them.

The parties to this agreement, entered into on the ___ day of _____, _____, are identified as follows:

SPONSOR: State University of New York
College of Environmental Science and Forestry
Syracuse, NY 13210

MAJOR PROFESSOR:

Name _____
Address _____
Telephone Number _____

HOST:

Name _____
Address _____
Telephone Number _____

SUPERVISOR:

Name _____
Address _____
Telephone Number _____

STUDENT:

Name _____
Address _____
Telephone Number _____

6. Student Learning Objectives (Examples: Groundwater Modeling, Bill Drafting, Facility Design):

7. Final Product(s) (reports, presentations, slide shows, etc.) expected and due date(s):

BIWEEKLIES:

INTERNSHIP DRAFT:

8. The Host:

A. Will be responsible for the student's employment, separation, fixing of hours of work, and other similar items associated with an employer-employee relationship.

B. Shall provide:

- (1) Technical direction and supervision.
- (2) Office space, supplies, equipment, and other working tools and facilities necessary for the performance of the student's assignments, if not otherwise provided.
- (3) Transportation of student from Host headquarters to work stations in the field.

C. Will report to the Sponsor, as required, the time and the work accomplishments of the students.

Report Schedule:

D. Will provide the student access to documents, meetings, field trips, etc., from which the student may articulate the broader organizational context.

E. Will not make a cash contribution to the Sponsor.

9. The Student shall meet Host standards as to qualifications to utilize facilities and operate its equipment. Host shall be the sole judge of the qualifications of the Student in this respect.

10. The Sponsor, on request of the Host, will reassign or terminate the assignment of student provided by the Sponsor.

11. The Major Professor will:

A. Approve the internship and oversee the student's progress.

B. Visit student intern on site (if location allows).

12. This agreement may be amended by mutual agreement of the parties hereto.

13. ESF - Environmental Studies Internship policy and requirements statements are included in this agreement by reference and are attached hereto.

14. Additional points:

FACULTY CHAIR SUNY-ESF	DATE
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NAME AND TITLE HOST	DATE
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SUPERVISOR	DATE
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MAJOR PROFESSOR	DATE
-----------------	------

STEERING COMMITTEE MEMBER	DATE
---------------------------	------

STEERING COMMITTEE MEMBER	DATE
---------------------------	------

STUDENT	DATE
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APPENDIX B.3

GUIDELINES FOR INTERNSHIP REPORTING

A professional internship provides the student with an integrative experience, which allows the student to apply the knowledge and techniques, learned from course work in the analysis and decision making for an environmental problem, issue or situation. The institutional setting, the mission, ethic and practice of the organization will have a profound impact on the methods used in approaching and resolving issues. Furthermore in order to demonstrate the integrative nature of the experience the student must have substantial responsibility for production of a work product(s) that illustrates the technical and social integration required in assessing issues and problems and posing solutions or remedial action.

The College requirement for the internship is a professional report prepared in accordance with College standards. ESF Graduate Academic Policies require that:

"The student must prepare a report satisfactory to the steering committee. The student's report on the academic or professional experience, prepared and bound according to College standards, will be maintained by the individual Faculty." Source: Office of Instruction and Graduate Studies, "Instructions for the Preparation of Theses, Projects and Reports".

The Graduate Program in Environmental Science further requires that the report format must meet Faculty requirements, as detailed in this Handbook.

1. A rough draft of the report must be submitted to the Major Professor by the end of the semester in which the internship credit hours are taken in order to receive an "S".
2. The general style manual for College reports is:

University of Chicago. (1969) *A Manual of Style for Authors, Editors and Copywriters*. (12th ed., rev.) Chicago: University of Chicago Press. Ref. Z 253 C53 1969.

Faculties may opt to use a style manual which is more discipline-oriented, and in doing so, accept the responsibility to communicate this preference along with any other special requirements to graduate students. The student's responsibility is to be aware of the style manual and any special requirements of his/her Faculty. In any case, the manual to be used should be indicated as part of the report plan, i.e., the student in consultation with the major professor should identify which style manual will be followed in preparing the report.

3. Generally, internship reports should observe the following organization:

Title Page

Acknowledgments

Table of Contents

List of Tables

List of Figures

Summary with Key Words (format included here)

Introduction

Body of Text

References

Appendices

Vita (format included here)

Alternatives to this organization may be authorized by the steering committee within any guidelines developed by the individual Faculties.

4. The body of the report shall have five sections:

- a. A comprehensive description of the organization of the internship institution from the perspectives of the core courses, reflecting studies of institutions, public participation, and decision-making.

- b. A summary of the major actual work conducted.

- c. A critical comparison of the methods and processes used in relation to relevant concepts and approaches from the student's academic program.

- d. Any completed work products or supporting materials to be included in the body of the report or as appendices.

- e. Selected references.

5. Production of the final report must follow College guidelines:

- a. Margins: left binding edge:1-1/2"
 right edge:1"
 top and bottom:1-1/4"

- b. Duplication of report: copies must be clear, neat, and easily read. Paper used must be of good quality, 16# or 20# bond.

- c. Binding of report: prior to graduation, one (1) signed copy must be turned in to the Office of Instruction and Graduate Studies. After binding, it will be distributed to the appropriate Faculty office. The student may order (and pay for) as many bound copies as desired for personal use.

FORMAT FOR SUMMARY

Last Name, First, Middle Initial. (Internship Title)

(Typed and bound internship report)

BODY OF SUMMARY

(May be double or single-spaced)

DO NOT EXCEED 350 WORDS

Author's name in full _____

Candidate for the degree of _____ Date _____

Major Professor _____

Faculty _____

State University of New York College of Environmental Science and Forestry
Syracuse, New York

Signature of Major Professor _____

FORMAT FOR VITA

NAME:

DATE AND PLACE OF BIRTH:

EDUCATION:

	<u>NAME AND LOCATION</u>	<u>DATES</u>	<u>DEGREE</u>
HIGH SCHOOL:			

COLLEGE:

EMPLOYMENT:

	<u>EMPLOYER</u>	<u>DATES</u>	<u>POSITION</u>

APPENDIX C

GRADUATE PROGRAM IN ENVIRONMENTAL SCIENCE STAFF AND PARTICIPATING FACULTY

134 Baker Laboratory
315-470-6528

Staff:

PATRICIA A. GIBEAULT (Patti)
134 Baker Laboratory, 470-6528
Secretary for Graduate Program/Receptionist

RUTH D. YANAI (Director of GPES)
210 Marshall Hall, 470-6955
(Forest Soils, Ecosystem Nutrient Cycling & Modeling)

RUSSELL D. BRIGGS (Director of the Division of Environmental Science)
358 Illick Hall, 470-6989
(Forest Soils, Site Productivity, Management Impacts on Water Quality)

Abbreviation Definitions:

ECLP-Environmental & Community Land Planning
ECPP-Environmental Communication & Participatory Processes
EPDP-Environmental Policy & Democratic Processes
ESRM-Environmental Systems & Risk Management
WWRS-Water & Wetland Resources Studies

ESF and other adjunct, faculty, who participate in GPES, change from time to time. Please check the GPES home page for the most current list at <http://www.esf.edu/environmentalscience/graduate/faculty.htm> .

APPENDIX D
M.P.S. CHECKLIST

Step	Procedure	Responsibility	Target date	Date done
1.	Propose steering committee (Memo to Office of Instruction and Graduate Studies (OIGS))	Major Professor (in consultation with student)	First semester	___/___/___
2.	Student and steering committee determine appropriate coursework. Student completes Form 3B and "Plan Sheet" forms. Student, major professor, and steering committee sign form (which must be approved by Ruth Yanai and OIGS)	Student	First semester	___/___/___
3.	Meet with steering committee to review study plan (and if necessary, revise Form 3B)	Student	Second semester	___/___/___
4.	Certify completion of all requirements (Form 9, through Ruth Yanai to OIGS)	Major Professor	Before graduation	___/___/___