Proposal

A Program of Graduate Studies in Environmental Policy and Management for the Master of Science Degree (Plan II)

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PRELIMINARY DESCRIPTION OF THE PROPOSED NEW GRADUATE PROGRAM

1. New graduate program name and degree(s) to be offered.

   Graduate Group in Environmental Policy and Management
   M.S. Plan II only

2. Aims and objectives of the program. Describe the new program, why it is worthwhile, and how it relates to the campus’s mission. Provide enough information so that an uninformed reader will have a reasonable understanding of the academic program envisioned.

   Aims & Objectives
   UC Davis ranks among the world’s strongest campuses in environmental research and science. However, one critical gap is a graduate program providing advanced training in applying environmental science to real-world environmental policy and management issues. Comparable peer institutions, such as UC Berkeley, Yale, University of Michigan, Duke, Harvard, Princeton, and Columbia, all maintain strong professional degree programs that are paired with traditional disciplinary research programs to link fundamental advances in science with real-world issues. Such programs bring visibility and financial support to contributing disciplinary programs and rely on disciplinary programs for intellectual and teaching support.
   This proposal is to establish a 1-year Master of Science Program in Environmental Policy and Management. The proposed program is of high academic quality, with a focus on quantitative skills, and is distinct from other campus and University of California programs in this field. It will benefit from and contribute to the interdisciplinary research culture at UC Davis, and provide a new and academically rigorous program for students interested in top-level, practice-oriented careers in environmental policy and management.

   Value of the Proposed Program
   UC Davis can benefit enormously by integrating a professionally-oriented master’s degree with our foundational programs in basic environmental science and research. While many professional policy graduate programs at our peer institutions cater to incoming students with policy, liberal arts, or social science backgrounds, the UC Davis program will set itself apart by targeting students with scientific and engineering backgrounds who seek applied professional careers in environmental policy and management. In this way, we believe a UC Davis Master of Science Degree in Environmental Policy and Management will benefit from existing expertise on campus while supporting and increasing the visibility of scientific, policy, and professional enterprises across campus. A primary focus of this program will be interdisciplinary training on the roles of science in environmental policy and management in a way that is directly relevant to policy-making and natural resource management.

   Why UC Davis?
   UC Davis is unique within the UC system: we are a comprehensive institution with a well-defined basic research mandate, also serving as one of the state’s land grant campuses. As a California land grant university campus, we have a special responsibility and mission for connecting the university to society with an explicit promise of service dedicated to solving the state’s most pressing problems. Reflecting this mission, UC Davis is particularly deep and broad in the scientific disciplines and has developed institutional infrastructure to reach the management, policy, and practitioner community at both local and global scales. Global environmental challenges are immense and as a result it is increasingly critical to develop sufficient knowledge in environmental policy and management throughout the various sectors in society.
Graduates of this program will be equipped to integrate technical and scientific expertise in a social-political-natural context to provide effective environmental policy and management solutions. This program will provide the necessary integrative background needed to develop the communications, organizational, and policy skills students must have to practically implement scientific and technical findings.

Diversity Statement
A diverse student population is vital to ensuring a successful Environmental Policy and Management Graduate Program at UC Davis. Diversity can come in many different forms including socioeconomic background, race, ethnicity, religion, gender, sexual orientation, nationality or place of origin, disability status—as well as different intellectual styles and disciplinary backgrounds. It is the goal of the EPM Graduate Program to cultivate a welcoming environment that values the many different kinds of backgrounds, approaches, and perspectives among students and professionals in the environmental sciences. This is an absolutely essential component to developing a thriving program that supports academic excellence while serving the needs of a diverse student population, as well as a diverse set of stakeholders in the environmental sciences. As a professional master’s program, the EPM is dedicated to serving the needs of the broader environmental workforce, where flexibility and respect for diversity at its many levels are vital to developing mutually beneficial and respectful collaborations among stakeholders.

The EPM will demonstrate its commitment to diversity through outreach and marketing campaigns (attending conferences, and visiting colleges and universities across the country) to encourage applicants from underrepresented groups to apply. In addition, there will be diversity among the guest speakers, lecturers, adjunct faculty and visiting fellows that affiliate with program, with many opportunities for students to engage with them. Guidance and mentorship will be provided through the EPM Program to develop strong leadership and diversity skills among students. All students who join the program will have access to a variety of diversity resources through the UC Davis campus (e.g., the Diversity Education Program, Women’s Resources and Research Center, Lesbian Gay Bisexual Transgender Queer Asexual Intersex Resource Center, and Student Disability Center).

3. Desired date of implementation.

   January 1, 2016

4. Department or (proposed) graduate group that will administer the program.

   Graduate Group in Environmental Policy and Management

5. Contact information for the people listed below. Include name, title, department, mailing address, email address, telephone number and fax number.

   a. The lead sponsor. In most cases, this will be a faculty member.

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b. The department or (proposed) graduate group chair, if different from the lead sponsor.

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Table of Contents

Section 1. Introduction ........................................................................................................ 1
  1.1 Aims and objectives of the program ........................................................................ 1
  1.2 Historical development of the field ....................................................................... 3
  1.3 Timeline for development ...................................................................................... 3
  1.4 Relation to campus programs ............................................................................... 6
  1.5 Interrelationship with other University of California institutions .................... 6
  1.6 Administrative home of the program ................................................................... 6
  1.7 Program evaluation .............................................................................................. 7

Section 2. Program ............................................................................................................. 7
  2.1 Undergraduate preparation .................................................................................... 7
  2.2 Program of study .................................................................................................. 8
  2.3 Course requirements ............................................................................................ 8
  2.4 Special requirements ............................................................................................ 11
  2.5 Committees ......................................................................................................... 11
  2.6 Advising structure and mentoring ....................................................................... 12
  2.7 Advancement to candidacy .................................................................................. 12
  2.8 Comprehensive exam .......................................................................................... 12
  2.9 Normative time to degree .................................................................................... 13
  2.10 Typical timeline ................................................................................................ 13
  2.11 Sources of funding ............................................................................................. 13
  2.12 PELP, In Absentia and Filing Fee status ............................................................ 13

Section 3. Projected Need .................................................................................................. 14
  3.1 Student demand ................................................................................................... 14
  3.2 Opportunities for placements of graduates ......................................................... 15
  3.3 Importance to the discipline .............................................................................. 15
  3.4 Needs of society ................................................................................................. 16
  3.5 Relationship to professional interests of the faculty .......................................... 17
  3.6 Program differentiation ....................................................................................... 17

Section 4. Faculty .............................................................................................................. 18
  4.1 Summary of Faculty Qualifications ................................................................. 18
  4.2 Initial graduate group faculty ............................................................................. 19
  4.3 New UC Davis faculty members ......................................................................... 19

Section 5. Courses ............................................................................................................ 20
  5.1 Brief course descriptions ..................................................................................... 21

Section 6. Resource Requirements .................................................................................. 22
  6.1 FTE faculty ......................................................................................................... 22
  6.2 Library acquisition ............................................................................................... 22
  6.3 Computing costs .................................................................................................. 22
  6.4 Equipment ........................................................................................................... 22
  6.5 Space and other capital facilities ......................................................................... 23
6.6 Other operating costs

Section 7. Graduate Student Support

Section 8. Changes in Senate Regulations

Appendix A – Other UC Davis Graduate Programs in Environmental Policy

Appendix B – 21 Environmental and Public Policy Programs/Schools

Appendix C – Expanded Course Descriptions for New Courses

Appendix D – Budget Spreadsheet

Appendix E – Example Jobs in Environmental Policy & Management

Appendix F – Bylaws of the Environmental Policy and Management Graduate Group

Appendix G – Degree Requirements in the Format of the Graduate Council

Appendix H – Letters of Support from Related Graduate Program’s

Appendix I – Memoranda of Understanding with Supporting Units

Appendix J – Letters of Support Deans

Appendix K – Faculty CVs

Appendix L – Faculty Letters of Commitment
Section 1: Introduction

1.1. Aims and objectives of the program
UC Davis ranks among the world’s strongest campuses in environmental research and science. One critical gap is a graduate program providing advanced academic training in applying environmental science to real-world environmental policy and environment issues. Comparable peer institutions, such as UC Berkeley, Yale, University of Michigan, Duke, Harvard, Princeton, and Columbia, all maintain strong professional degree programs that are paired with traditional disciplinary research programs to link fundamental advances in science with real-world issues. Such programs bring visibility and financial support to contributing disciplinary programs and rely on disciplinary programs for intellectual and teaching support.

This proposal is to establish a new Master of Science in Environmental Policy and Management offered by a graduate group of the same name. We describe the value of such a degree program to students, campus and society; we then describe a specific degree, administratively supported by the John Muir Institute for the Environment (JMIE) and the Policy Institute in Environment, Energy and Economy (PIEEE), and housed within the College of Agricultural and Environmental Sciences. The anticipated student enrollment and sources of students are discussed, along with financial aspects of sustaining the program. The proposed program is of high academic quality, distinct from other campus and University of California programs in this field, will benefit from and contribute to the interdisciplinary research culture at UC Davis, and provide a new and academically rigorous program for students interested in top-level, practice-oriented careers in environmental policy and management.

A. Value of the proposed program
UC Davis can benefit enormously by integrating a professionally-oriented master’s degree with our foundational programs in basic environmental science and research. While many professional policy graduate programs at our peer institutions cater to incoming students with policy, liberal arts, or social science backgrounds, the UC Davis program will set itself apart by targeting students with scientific and engineering backgrounds who seek applied professional careers in environmental policy and management. In this way, we believe a UC Davis Master of Science Degree in Environmental Policy and Management will benefit from existing expertise on campus while supporting and increasing the visibility of scientific, policy, and professional enterprises across campus. A primary focus of this program will be interdisciplinary training on the roles of science in environmental policy and management in a way that is directly relevant to environmental policy-making and natural resource management.

B. Why UC Davis?
UC Davis is unique within the UC system: we are a comprehensive institution with a well-defined basic research mandate, also serving as one of the state’s land grant campuses. As a California land grant university campus, we have a special responsibility and mission for connecting the university to society, with an explicit promise of service dedicated to solving the state’s most pressing problems. Reflecting this mission, UC Davis is particularly deep and broad in the scientific disciplines and has developed institutional infrastructure (through JMIE and
PIEEE) to reach the management, policy, and practitioner community at both local and global scales. Global environmental challenges are immense and as a result it is increasingly critical to develop sufficient knowledge in environmental policy and management throughout the various sectors in society. Other relevant perspectives are those of the students, prospective employers, and those of the campus itself.

C. Students and employers

- Students and employers often ask for better and more formal preparation to bridge the differences between scientific academic background and policy and management work, with emphasis on communicating technical information in various management and policy contexts
- Increased attention is being placed on the co-development of science for policy and management. Doing so requires training individuals with the interdisciplinary skills to understand both communities
- Having such academic preparation will increase the effectiveness of students professionally, in government, business, and non-governmental organizations
- Environmental problem solving increasingly requires more analytical capability within a political and economic decision-making framework
- Real and rigorous problem-solving skills involving analysis, communication, and negotiation are needed for students with scientific backgrounds involved in policy-making and management positions

Graduates of this program will integrate technical and scientific expertise in a social-political-natural context to provide effective environmental policy and management solutions. This program will provide such an integrative background and develop the communications, organizational, and policy skills students must have to practically implement scientific and technical findings.

D. Campus

A dedicated environmental policy and management program would:

- Allow the campus to be more competitive, visible, and engaged in all areas of environmental scholarship
- Attract more of the best students to the UC Davis campus, for all degree and non-degree programs
- Increase visibility and create a focus for environmental management and policy activities on the campus
- Enhance outreach to international, national, state, regional, and local constituencies, and especially agencies and private organizations with offices in Sacramento
- Complement traditional research-oriented graduate programs (e.g., Ecology, Hydrological Sciences) by offering a program specifically for people choosing non-academic careers
- Serve as a center for collaboration and activities for the campus’ science-based environmental graduate groups (Ecology, Geography, Hydrologic Science, etc.)
• Serve as a center for excellence in collaborative inter-disciplinary activities for the diverse faculty and researchers on campus working on environmental problems
• Bolster all environmental programs and activities on the UC Davis campus and support new initiatives in this area

1.2. Historical development of the field and development of campus strength in the field
The UC Davis campus has tremendous strength in environmental sciences, including a large number of faculty members working on environmental problems from a diverse range of disciplines, particularly in the biological and physical sciences and engineering. Campus faculty members in disciplines related to environmental policy and management have achieved notable individual and disciplinary prominence, but the campus has not achieved appropriate recognition for its strengths in environmental management. The proposed program will unite and strengthen several components of UC Davis programs including:
• excellence in resource and environmental economics
• excellence in environmental politics and policy
• excellence in environmental engineering
• excellence in biological and physical sciences
• close ties to environmental practice, particularly in the nearby Sacramento area, but also including a variety of state, federal, local, national and international agencies

The proposed degree program will combine a background in scientific research with training in social science, management, and professional disciplines. This combination seems highly suitable for the UC Davis campus.

1.3. Timeline for program development
Implementation of the new master’s program would be staged as follows, over 3 years:

Fall 2014: The Environmental Policy and Management Master’s program and its accompanying graduate group would be proposed and submitted for administrative and Campus Graduate Council review. The Provost has committed two new faculty FTE to this new program as part of the Provost’s Hiring Investment Program (HIP). Other teaching will be facilitated through teaching buy-outs. These buy-outs will be made financially viable through the Dean of Graduate Studies pass through of 50% of NRSTF (nonresident supplemental tuition as well as pass through of normal Student Credit Hour (SCH) fees). The lead Dean (CA&ES) commits pass through of SCH fees generated by this program to support administration and teaching for the program (see MOU).

2014-2015: The two new faculty members will be recruited. There is one position in Climate Science and one in Climate Policy. Recipient departments are Environmental Sciences and Policy (DESP) and Wildlife Fish and Conservation Biology (WFCB). Each department has committed to teaching two courses within the EPM program in exchange for the positions.
2014-2015: Systemwide Coordinating Committee on Graduate Affairs (CCGA) approval will be sought immediately upon campus graduate approval. Faculty would develop course numbers and garner course approvals.

2015-2016: Recruiting of graduate students would begin. Publicity and fund-raising would begin, along with the approval process for core courses.

2016-2017: The first cohort of students would arrive (10-20 students). Existing and new faculty would teach the curriculum, with assistance from non-Academic Senate instructors. Publicity and fundraising activities continue.

2017-2018: The Environmental Policy and Management MS program would complete its implementation. Student enrollment would increase to 20-40 students. Budget would roughly reach steady-state.

2018 and onward: Expected program growth would saturate at approximately 40 students.

Roll-out of the program will combine temporary use of existing courses, buy-out of on-campus instructors, and greater use of external lecturers until the program reaches an equilibrium and we better understand the faculty FTE required. It is anticipated that the entering classes in the first years would be limited to 12-20 students, with a build-out by year three of possibly 40 students.

New faculty hired would be housed in existing departments, with affiliations at JMIE. These are described in section 4 under Faculty. With an agreement between the program, the home department, and the Provost, the new faculty (or equivalent FTE from the unit) will be committed to teaching in this graduate program. This will allow for significant participation of both senior and junior faculty in EPM courses and provide greater flexibility in staffing.

Co-listing with existing courses: We anticipate launching the program with co-listing of three classes taught by members of DESP; two of which currently have low enrollment. ECL 212A (Environmental Policy Process; G. Arnold) will be cross-listed as EPM 201A (Environmental Policy Analysis, A); ECL 212B (Environmental Policy Analysis; M. Springborn) will be cross-listed as EPM 201B (Environmental Policy Analysis, B). EPM 202 (Environmental Administration and Management) may be initially cross-listed with ESP 172 (Natural Resource Management) until the program is fully subscribed.

Buy-out of instructors: On campus instructors will be bought out of existing teaching or other duties for roughly $13,000/course. This will allow some teaching of new courses for the program before new faculty hires are completed.

Off-campus lecturers: Given the close proximity of Sacramento, there are many potential well-qualified instructors. Having 2-4 highly-qualified non-Academic Senate instructors adds significant diversity, fitting to a practice-oriented program, and provides a basis for useful
contacts within the policy community. Such instructors could include present and former high agency officials. Both JMIE and PIEEE currently have existing relationships with current and former agency employees who have expressed a specific interest in teaching on campus. Some instruction would be provided through a Senior Fellows Program whereby senior experienced policy-makers would be recruited to come to Davis for a specified program for assessment and development of innovative environmental policy combined with lectures and classroom instruction.

1.3.a. Related program development activities and opportunities
Additional roll-out activities include publicity, fund-raising, and affiliated fellowship programs.

Publicity is a major part of starting a new program. On-campus efforts would concentrate on students in existing campus research programs that are interested in supplementing current degrees with the M.S. in environmental policy and management. Off-campus efforts would include a media and professional campaign, inauguration of a graduate internship program with agencies in Sacramento, publicity for fellowship support, publicity for a Senior Fellows Program, collaboration with the UC Center in Sacramento, and other activities useful for establishing a flagship program and of use to the campus generally.

Fund-raising: Part of the establishment of this program is a significant fund-raising program to support distinguished visiting lecturers and scholars, who will in turn support the instructional and practicum components of this program. Fund-raising will be pursued to support scholarships to needy or worthy students, practicum activities, occasional workshops, and endowed faculty chairs. Preferential support would be in the form of named endowments.

Senior Environmental Policy Fellowship Program: Our intent is to augment professional experience by engaging senior environmental policy professionals to come to campus and engage with faculty and students. The practicum experience will send students into the workplace. This program will do the converse: bring professionals to campus. Environmental policy scholars will be asked to work with students to consider innovative models of environmental policies. Scholars will provide lectures or even short focal units within with policy studios along with discussions with faculty and students. Such fellowships could consist of several months of full-time activities on the Davis campus, or longer periods of presence on the campus for several days a week. Former directors, deputy directors, and senior staff would be especially suitable for such fellowships.

First-Year Cohort Fellowships: Each Cohort Fellowship is equal to a 50% GSR for 9 months plus an average of resident and non-resident fees/tuition. Award size will vary by residency status. Normal graduate program block grant funding would be $80,000/year under full program development ($2000/student). This will be principally used to fund nonresident fees for international students (~5 NRST fellowships) and for fellowship support for outstanding students currently enrolled in relevant campus Ph.D. programs (~5 two-quarter fellowships). We will seek additional support through external funds. The viability of the program, however, will not be affected by our success in raising such off-campus funds. Numerous similar
programs are thriving on a fully paying student body. Additional funds would be for special fellowships to recruit students from outside the campus.

1.4. Relation of this program to existing campus programs
Several disciplinary programs at UC Davis include graduate students studying environmental policy, usually from a research perspective. While such programs have great merit, they are primarily academic programs seeking to train students in academic research skills. This does not encompass the full set of training and skills necessary for high-level professional practice in environmental policy and management. Appendix A lists existing graduate programs at UC Davis with research interests in environmental policy. It is expected that students may choose to earn dual degrees in many of these research fields together with a MS in Environmental Policy and Management. This would better prepare these students for success in a broader range of career paths.

1.5. Interrelationship of the program with other University of California Institutions
The University of California Center in Sacramento provides opportunities for practicum experiences as well as linkages to courses offered in cooperation with other UC campuses. In particular, it might be useful for students conducting internships or research at the UC Center in Sacramento to take some classes in the UC Davis program or collaborate with UC Davis faculty in environmental policy. Practicum topics will commonly involve matters of contemporary policy interest in Sacramento, such as water markets, pesticide regulation, air quality, or toxic substances, for which students can combine scientific and technical perspectives with policy interests. Similarly, some teaching activities might be usefully undertaken at the Sacramento Center, facilitating contact among UC Davis students, other students at the Sacramento Center, along with policy makers and their staff. The UC Sacramento Center is a very promising venue for professional development connections.

Similarly, we envision the potential to partner with the UC Washington Center to place students in practicum experiences at the nation’s capital. Our aligned graduate programs have placed numerous people in DC-based NGO and agency positions. Together these connections can be leveraged for those interested in policy at the national level.

1.6. Administrative home of the program
The College of Agricultural & Environmental Sciences will serve as the lead college for the proposed Graduate Group in Environmental Policy and Management, with the Department of Environmental Science & Policy as a strong partner in core teaching (see MOU). The John Muir Institute of the Environment (JMIE) will provide administrative support to the program. The Policy Institute in Environment, Energy and Economy (PIEEE) will be a full partner in this endeavor, capitalizing on their success in engaging the State of California, other states and countries (currently their portfolio of projects is >50 out of state), for teaching and practicum opportunities.
1.7. Plan for program evaluation

The graduate program would be subject to standard Graduate Council’s Program Review three years after students are first admitted. Thereafter, the M.S. in Environmental Policy and Management program will be reviewed based on the periodic graduate program review cycle of seven years, or the typical cycle as determined by UC Davis Graduate Council.

Section 2. Program

2.1. Admission requirements

Consideration of admission requires a bachelor’s degree, three letters of recommendation, official transcripts and GRE scores from within the past 10 years. TOEFL or IELTS scores are recommended for foreign students from non-English speaking countries. There is no expectation of students serving as Teaching Assistants. Those who request consideration of such support will be required to submit TOEFL or IELTS scores.

Students are required to apply to Graduate Studies, with appropriate fees, by January 1 of the academic year preceding program entry. Students will be enrolled as cohorts and no mid-year enrollment will be permitted. Students are required to have a minimum GPA of 3.0, or the international equivalent. Applicants are expected to have GRE minimum scores of 80% Quantitative, 60% Verbal and 50% Analytical Writing, although exceptions may be made on a case-by-case basis.

Admitted students would be expected to have a scientific, engineering, or technical baccalaureate degree, including courses in introductory environmental sciences, calculus and statistics (taught with calculus). Prior coursework in economics (intermediate microeconomics) is recommended, but not required. In many cases, such as technical students lacking an economics course, this might be accomplished in the summer prior to beginning the program.

2.1.a. Prerequisites: Students without a prior degree in a scientific, engineering, or technical field would be required to complete a set of preparatory courses, or their equivalents, to provide them with a fundamental scientific background in environmental science. This scientific training can be in any appropriate scientific discipline. Sciences are taken to mean the STEM (Science, Technology, Engineering, & Math) core disciplines. Those with an undergraduate degree in Environmental Studies will be individually evaluated to ensure that they have a minimum of two quarters of introductory science equivalent (e.g., Introductory Biology, BIS 2A, BIS 2B) and two quarters of upper division STEM courses (e.g., EME 150 Mechanical Design, Evolution BIS 100). Pre-requisite decisions will be made by the admissions committee at the time of application decision. There is no foreign language requirement for entry or successful completion of the program.

2.1.b. Deficiencies: Since this is a one year course that begins in fall, no student will be admitted who will not be able to fulfill all deficiencies in the summer prior to the commencement of the program.
2.2. Program of study: MS Plan II only
This program is designed as a 12 month, coursework centered, terminal practice-oriented master’s degree. As a plan II Masters of Science, the degree requires 42 units of graduate (200 series) or upper division (100 series) courses. A minimum of 18 units will be graduate courses in the major field. A comprehensive final exam is required for successful graduation. Neither research nor a thesis is required.

2.2 a) Specific fields of emphasis. This program emphasizes the role of scientific and quantitative analysis in environmental policy, including both quantitative analysis of environmental problems and the application of science to environmental management and practice. We envision an eventual suite of specialized areas within this broader rubric of environmental policy and management (freshwater, marine, air quality, biodiversity and conservation, and climate change). Initial coursework will focus on integrating these 5 focal areas.

2.2 b) Plans. Only Plan II (Comprehensive Examination) MS degree is offered.

2.2 c) Unit requirements. The proposed Master’s Degree in Environmental Policy and Management would be a program of full-time graduate study on the campus and requires 42 units to graduate.

2.3. Course requirements – cores and electives (42 units)
The curriculum is designed to allow students to complete the degree in 1 calendar year, (possibly 2 if they are combining this with a research degree) consisting of 3 quarters of core classes and electives. A practice-oriented, mentored capstone practicum will be required for graduation (6 units, summer quarter, EPM 299). Students may take additional electives beyond the minimum requirement. Expanded course descriptions appear in Appendix C. The EPM is a specialized M.S. program, courses for this program are heavily prescriptive, and students will take most classes with their cohort. As a consequence, a number of new courses will be the backbone of this program. New courses (shown with EPM – Environmental Policy and Management designation) will be submitted for approval to the courses committee immediately following approval of this program. Core courses, with current faculty expressing interest in regular teaching, appear below:

2.3.a) Core courses
EPM 200 A, B, C: Analysis of Environmental Policy I, II, III (3 courses, one course each quarter – 4 units each) (Schwartz, Arnold (cross-list ECL 212A), Springborn (cross-list ECL 212B)

EPM 201: Environmental Law (Fall, 3 units, contract teaching)

EPM 202: Administration and Management (Fall, 4 units, various, mostly contract teaching)

EPM 203A, B: Policy Studio (4 units, Fall Winter, Spring) (team taught by faculty core, focusing on the different thematic areas)
EPM 297: Professional Development Seminar (3 courses – 1 unit each) (focusing on professional development, linked to Policy Studio EPM 201 in winter and spring quarters). Required each quarter.

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2.3.b) Elective courses
The program requires one elective in quantitative analysis. Quantitative analysis can include statistics for non-statistics majors (e.g., STA 100, Applied Statistics for Biological Sciences); approaches to quantitative analysis (e.g., ANT 298, Statistical Rethinking); or non-statistical quantitative methods (e.g., LDA 185, Concepts and Methods in GIS). One additional 3 unit elective is required. Additional electives are at student discretion. Electives allow students to develop a topical focus or specific policy competence for their program, related to their career interests and their practicum area.

2.3.c) Summary
This degree emphasizes experiential learning for students that carry a scientific background into the program. The program creates a relatively simple and highly prescriptive structure. There are seven elements to the degree program: the core course (12 units; graded); quantitative methods (3 units; graded only); law, management and administration requirements (7 units, graded); the policy studio (8 units; graded); professional development seminar (3 units; S/U only), and elective (3 units) and a practicum (6 units, graded). The rationale for each is described below.

2.3.c.1. The EPM Core Course (EPM 200), running three quarters, will present the fundamentals of the policy process, including economic analysis of policy, the policy process, environmental law, environmental management, and environmental administration. This course will focus on teaching fundamental skills to occupy leadership positions within environmental agencies, NGOs and consulting firms.

2.3.c.2. The Policy Studio will be the focal opportunity for experiential learning that focuses on integrating a wide array of quantitative and technical tools on policy problems. The studio will
be problem-focused and interactive. The first quarter will focus on dividing the cohort into small groups and defining a group project. The group project will have a lead mentor and several supporting mentors. Each project will be required to analyze and report on the scientific and technical aspect of a large scale environmental problem. Environmental challenges will be described and analyzed on a local, national and global scale; however the group will select one particular scale for in-depth analysis. The studio will begin by analyzing the potential for policy-relevant science; this being defined by the policies (a common set of practices guided by anything from NGO operating procedures to law) that dictate societal behavior, and identifies the individuals or groups that drive the policy process. The group will evaluate the state of scientific knowledge and identify inflection points for change (i.e., new knowledge that could change policy outcomes, changes in societal perception needed to change policies). Groups will then assess barriers to change in order to develop a synthetic assessment of potential for, and barriers to, better policy outcomes for society. Each Policy Studio will include a suite of required elements, including an assessment of economics, problem administration, law, as well as a scientific and technical assessment.

2.3.c.3. Working for agencies, politicians, NGOs or consulting firms requires an understanding of environmental law. Working within this environment also requires business administration and people and project management. We propose a course called Environmental Law, Administration and Management. This fall 2-course combination will be modularized courses with different instructors to deliver specialized topics. It will be offered in the fall as foundational to group work in policy studios.

2.3.c.4. The EPM program specializes in quantitative analysis of environmental problems. The quantitative analysis requirement will allow students to choose among a wide array of existing upper-division quantitative courses already in existence at UCD.

2.3.c.5. The elective class can take advantage of any number of upper division undergraduate or graduate classes and provide the opportunity for students to garner strength in an area of particular interest.

2.3.c.6. The Professional Development Seminar will bring a diverse array of leaders from agencies, the legislative branch, environmental NGOs and consulting firms to campus to discuss career opportunities and leading challenges within their professions. Each quarter will focus on a thematic topic (e.g., climate change, freshwater supply, fire management).

2.3.c.7. The Practicum will be a capstone experience for students to integrate and apply their coursework to a problem in a practical applied professional setting, and will provide students with experience in the professional field. Practicum projects will vary, but all will result in a written report and an exit interview with a committee of faculty that will represent the comprehensive exam.

Most practicum projects are expected to be individual projects; however group projects with identifiable individual contributions are also possible. Projects will be developed in
consultation with one or more faculty members as supervisors of each practicum project and an agency, NGO or consulting firm. The intent of the practicum is to contract with and fulfill a policy research/analysis need of a partnering agency, NGO or consulting firm. Program staff will work with students to develop practicum experiences, including contractual obligations with the partnering organization. It is anticipated that partnering organizations will compensate students for their work through a small grant to the University. Alternatively (e.g., students who are currently working for an agency, NGO or consulting firm), a student may propose a practicum project with a faculty mentor but without a direct agency, NGO or company lead. The practicum is intended to be an experiential exercise in professional development, and not a research project. In each case, students are expected to propose a practicum along with a professional development plan that states how the practicum is envisioned to further their individual career objectives.

The focal administrative support units of this program (The John Muir Institute of the Environment (JMIE) and the Policy Institute in Environment, Energy and Economy (PIEEE) currently administer similar practicum programs for graduate students. The JMIE program partners specifically with The Nature Conservancy; PEEE currently runs such a program with state agencies. The scope and content of practicum projects will be similar to those of practice-oriented degree programs elsewhere, such as that of the project required by the Public Policy Master’s program at UC Berkeley’s Goldman School.

The academic year preparatory period for the practicum allows time to develop a contract with a coordinating partner (agency, NGO, consulting firm) that includes deliverables, and fees for services rendered. During this period, the student will find an appropriate faculty sponsor and write a professional development plan.

2.4. Special requirements
Both the Practicum and Policy Studios will conclude with presentations to the program to which the public and stakeholders may be invited. These presentations will be evaluated by a program committee who will prepare a summary for the student as fulfillment of their comprehensive examination.

2.5. Committees
2.5.a) Admission committee. Following the application deadline, the admission committee will review applicants to assemble a cohort of students for the yearly program. The admission committee will consist of three graduate group faculty members and two external advisors (from agencies, NGOs, consulting firms). The external advisors’ input will be advisory, with the graduate faculty having the final say in admissions. However, external advisors will be critical in helping steer the program based on industry demand of graduates and profiles of students likely to succeed along their described professional trajectories.

2.5.b) Advising committee. Each student will assemble a committee of three faculty members to advise individual students on two specific issues. First, the committee will advise students on
potentially relevant quantitative methods classes as an elective. Second, the committee will advise students in their practicum project.

2.5.c) Comprehensive exam committee. The program will establish a comprehensive exam committee composed of three faculty members, appointed by the chair for 1 year terms. This committee will be responsible for evaluating students relative to their Policy Studio and Practicum work. Students do not have a major professor, and hence there is no concern whether or not such a person would be on this committee.

2.6. Advising structure and mentoring. Lacking major professors, per se, students will be advised by (a) the program staff (graduate group chair and program academic coordinator); and (b) the Comprehensive Exam Committee (CEC). The faculty graduate group chair and the program academic coordinator will be principally responsible for interviewing and evaluating incoming students with respect to their professional aspirations. The program staff will discuss with the student their quantitative needs to recommend an elective course in quantitative methods. The CEC will be principally responsible for evaluating students on studio and practicum work. As such this committee will be responsible to sign off on project proposals for all practicum and studio projects. Finally, the program staff will be responsible for career counseling throughout the year long program.

2.7. Advancement to candidacy
All students will advance to candidacy once they have approved Studio and Practicum projects. This is anticipated to be by the end of winter quarter and after the successful completion of 25 units of study.

2.8. Comprehensive exam
The comprehensive exam will be conducted as a consequence of fulfilling all program requirements and being ready to embark on their practicum experience. It is expected that this exam will be conducted at the conclusion of spring quarter. The exam will combine an evaluation of three written reports: (1) the student’s professional development plan, (2) the student’s practicum proposal, and (3) the student’s policy studio projects. If any component of these materials is less than satisfactory, the student will be asked to also have an oral exam that can include elements of basic understanding of the principles of the curricular material, or an evaluation of the student’s written products (e.g., the professional development plan). Specifically, the committee will determine if they agree that the student has learned the necessary tools with which to succeed in their professional development plan. Students who do not pass this exam can be (a) asked to engage in individual study to fulfill deficiencies in knowledge or (b) retake specific classes. Students would then be required to retake the exam. Failure would also trigger an explanation from program course instructors regarding student performance in the curricular requirements of the program. A second failure would result in a recommendation to the Dean of Graduate Studies that the student be disqualified from the program.
2.9. Normative time from matriculation to degree
Normal time from matriculation to degree is anticipated to be 12 months, although students may elect to spread the program across 2 years. Normative time to advancement to candidacy is 2 quarters.

2.10. Typical timeline. 12 months.

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer &amp;/or Fall</th>
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</thead>
<tbody>
<tr>
<td>Analysis I (4) EPM 200A</td>
<td>Analysis II (4) EPM 200B</td>
<td>Analysis III (4) EPM 200C</td>
<td>Practicum (6) EPM 299</td>
</tr>
<tr>
<td>Environmental Law (3) EPM 201</td>
<td>Policy Studio (4) EPM 203A</td>
<td>Policy Studio (4) EPM 203C</td>
<td></td>
</tr>
<tr>
<td>Env. Admin. &amp; Mngmnt (4) EPM 202</td>
<td>Quantitative Analysis or Elective (3)</td>
<td>Quantitative Analysis or Elective (3)</td>
<td></td>
</tr>
<tr>
<td>Professional Development Seminar (1) 297</td>
<td>Professional Development Seminar (1) 297</td>
<td>Professional Development Seminar (1) 297</td>
<td></td>
</tr>
<tr>
<td>12 units</td>
<td>12 units</td>
<td>12 units</td>
<td>6 units</td>
</tr>
</tbody>
</table>

2.11. Sources of funding
Students are expected to pay for their own tuition, fees and support. Block grant monies will be targeted toward exceptional students, particularly international students to help defray costs of nonresident supplemental tuition (NRST).

2.12. PELP, In Absentia, and Filing Fee status
We anticipate no unusual status for PELP, in absentia or filing fee status. Although these will undoubtedly occur, with a brief 12 month, cohort-centered program, where there is strong program involvement in professional placement in studio projects and practicum experiences, we anticipate low rates of these tools for students who are not following the expected trajectories. We anticipate extenuating features of these tools for helping students through challenging situations, beyond those already described by Graduate Studies, to apply to this program.
Section 3. Projected Demand

3.1. Student demand for the program

This program would serve students interested in professional careers in Environmental Policy and Management in either governmental or non-governmental positions. These positions require a mix of scientific and technical understanding as well as understanding and skills related to policy, economics, law, and administration. Examples of entry-level positions in these careers include: legislative staff, agency staff, staff to non-governmental organizations, business environmental officers, as well as consultants. The UC Davis program would serve these necessary entry-level needs and, more importantly, the development of skills, ideas, and perspectives useful for careers to higher levels of practice, such as agency heads and other leaders of organizations.

We anticipate demands from students who wish to:

- seek an Environmental Policy and Management MS degree alone
- pursue an Environmental Policy and Management degree alongside other UC Davis graduate degrees (Ecology, Geography, Geology, Hydrologic Sciences, etc.) or professional degrees (Law, Engineering, Medicine, Management, Veterinary Medicine)

We can document projected interest three ways. First, program review of affiliated graduate programs (e.g., Ecology Graduate Group) demonstrate that > 50% of their graduates seek careers outside of academia. This program seeks to train scientists to work in the policy and management realm. Second, the undergraduate policy major at UC Davis has increased dramatically in the past 5 years. This indicates a demand for training to enter the policy realm. Third, all of the faculty interested in participating in the EPM have heard reports from scientists at agencies who seek additional policy training so as to advance within their current agencies.

Students entering the program would be expected to have a prior undergraduate major in a scientific, technical, or analytical field. Students without such a background would be expected to complete preparatory pre-requisites before taking core classes (to bring to a total of 3 upper division classes in an area of science such as biology, chemistry, physics or engineering).

Entering classes of 20-40 students/year are expected at full build out. When achieving this, we expect students to specialize and cluster on themes of freshwater, marine, terrestrial conservation, air quality or climate change. These would be sub-groups of ~10, which is small enough to foster camaraderie between students and faculty, but large enough to be a critical mass. Initially, and perhaps for the long-term, we expect many students in this program to be already enrolled on the campus in other research-based scientific or professional graduate degree programs. There is significant potential for dual-degree students, as many as 2-3/year with Law, 2-5 with Engineering, and 3-10 with Ecology. This program also might be suitable for some post-doctoral researchers who want to shift or broaden from a scientific to an environmental policy career path. We also envision that 25-30% of students might come from agencies and NGOs; these would be students seeking to shift careers from scientific or field
work to policy leadership positions. The one-year program is designed to allow those already engaged in the work force to more easily take time off to complete the degree. We will strive to develop the capacity for 20-40% of students to be international.

We would like to begin with a small full-time program. As the program’s reputation becomes established, enrollments could grow considerably. Studies by UC Davis Extension indicate a significant demand for a practice-oriented environmental management degree in the Sacramento region, perhaps 40-50 new students each year. Much of this regional demand is from employees already in environmentally-related fields.

3.2. Opportunities for placement of graduates
The program will dedicate a significant portion of a full time academic coordinator position (described below) to professional placement. We plan to utilize recently retired and currently active agency workers to deliver contract teaching (described below) and practicum mentoring (described above). The practicum provides a tangible connection to professional employment opportunities.

Every office of every local, state, and federal environmental agency requires specialists in environmental practice. Any sizable environmentally-related non-governmental agency and consulting firm, and many industries and legislative staffs, also require such specialists. Often these individuals are drawn from other professions, such as engineering, law, and management or from other individual disciplines. Individuals with a broader intellectual preparation for management and policy careers would have a great advantage, particularly when combined with scientific or technical undergraduate or graduate backgrounds.

California, especially the Sacramento area, is replete with opportunities for environmental policy and practice specialists in government agencies, NGOs, and firms. The nearby Bay Area also has many such opportunities, as does the more distant southern California market and the growing southern Central Valley. These include the California Air Resources Board, the California Department of Fish and Wildlife, The California Resources Agency, as well as NGOs such as Natural Resources Defense Council, The Nature Conservancy, California Audubon, The Sierra Club, Defenders of Wildlife, and many other smaller organizations. Finally, there will also be professional opportunities in the many environmental consulting firms operating within California. A significant market for graduates in environmental policy and practice is worldwide, with many UC Davis graduates working in Washington, DC or overseas. Our environmental institutes have significantly increased their international collaborations in the past five years and we anticipate much of the demand, and many of the positions may come from outside the United States.

3.3. Importance to the discipline
New and better ways to manage environmental problems are needed. UC Davis, with its broad strength in this area is well suited to developing new management approaches and integrating these approaches with scientific and technical knowledge. California, with its deep commitment to the environment, is a perfect environment in which to train these
professionals. The integration of scientific, technical, policy, and management disciplines to applied problems is among the most difficult intellectual problems and has immense practical importance. This program will be important for disseminating advances in this field and providing opportunities for the campus to become integrally engaged in the solution of environmental problems. These synthesis and application roles are immensely important for effective environmental management and sustaining university research in the environmental area.

3.4. How the program will meet demands of society
Societal demand for environmental professionals in the U.S. is expected to increase in the next decade, based on the Bureau of Labor Statistics\(^1\). Employment for environmental scientists and specialists is projected to grow 15% from 2012-2022. The current number of jobs in the area is 90,000. Likewise, the demand for environmental science protection technicians is expected to grow 19% during the same time frame (with 32,800 current jobs). The expected job growth in the environmental professions is faster than the average over all occupations (11%)- therefore, students on this career path can expect a robust job market, with the best opportunities probably being in local and state government. However, growth in private consulting firms that help clients monitor and manage environmental concerns is also expected.

A search for job opportunities on two prominent job websites: [http://www.monster.com/](http://www.monster.com/) and [http://www.environmentaljobs.com/](http://www.environmentaljobs.com/) (search conducted on 11/18/2014) yields more detailed information on current job prospects. Using search terms “environmental policy” and “environmental specialist” reveals 1000+ current job openings nationwide. Job titles include the following: environmental analyst, environmental compliance manager, senior environmental scientist, water quality specialist, NEPA support specialist, and environmental planner. The same search on [https://www.usajobs.gov/](https://www.usajobs.gov/) yields over 300 current jobs, with job titles such as: director of environmental science and assessment, environmental protection specialist, natural resource manager, and policy analyst. The John Muir Institute of the Environment also publishes job opportunities in a weekly newsletter. We provide an example list of current job opportunities on the JMIE website ([http://johnmuir.ucdavis.edu/field-notes/jobs](http://johnmuir.ucdavis.edu/field-notes/jobs)), including an example job description in Appendix D.

Growth in the industry is expected to occur largely due to heightened public awareness of environmental problems, and the increasingly complex environmental laws and regulations which are being passed, regarding issues such as clean air, ground-water contamination, and flood and erosion control. Retirements are also expected to contribute to increased job opportunities. Students graduating from the proposed EPM program will be in an ideal position


Employment and Training Administration, US Department of Labor, [O*NET Online, Environmental Scientist](http://online.onetcenter.org/link/details/19-2041.00), on the Internet at [http://online.onetcenter.org/link/details/19-2041.00](http://online.onetcenter.org/link/details/19-2041.00)

to address the complexity of environmental policy and management so that governments and agencies can manage environmental concerns and comply with environmental regulations in a sustainable fashion. Across all regions of the U.S., and abroad, there is a growing need for environmental management specialists to employ scientific advances in technology to the management of environmental problems. There is a need for a more formalized interface between scientific and technical aspects of environmental problems, and environmental policy. This is the particular orientation of the proposed program.

3.5. Program relationship to research and professional interests of the faculty
The proposed program has several roles for the research and professional interests of the faculty:

- Another venue for passing ideas to students
- A promising vector for bringing university ideas to policy-makers and policy shapers
- A means of increasing university faculty exposure to interesting and relevant problems in the environmental field
- A means of developing applications and ideas relevant to disciplinary teaching activities outside of this program
- An occasional source of motivated and capable Ph.D. students
- Another means to attract high quality and capable students to other UC Davis degree programs
- A means to develop ties between UC Davis and governmental and non-governmental interests in the environmental field
- A means to increase the visibility of UC Davis and the excellence of its programs within and outside of the environmental area

3.6. Program differentiation
Why go to UC Davis, rather than another university’s environmental policy program?
We want to compete internationally, and will need to highlight comparative advantages. Advantages of a program at UC Davis over many other programs include:

- Proximity to Federal and State agencies, stakeholders, and firms in Sacramento and the Bay area, as sources of environmental expertise, experience, and jobs. This region has one of the highest concentrations of environmental employment in the country, with major State (CalEPA, Resources Agency, etc.) and Federal (EPA region IX, USBR Mid-Pacific Region, etc.) offices, as well as a host of legislative, executive branch, consulting, and capital offices of regional and local governments (e.g., Sacramento offices of Metropolitan Water District of Southern California and Kern County Water Agency, etc.), and numerous interest-group offices
- Proximity to a diverse range of important environmental problems in California and California’s Central Valley, such as air quality, toxic substances, water resources, water quality, and ecosystem sustainability
- California’s reputation for leadership in environmental policy and management
- UC Davis’ range and depth of on-campus environmental research expertise and the campus’ involvement in state, national, and regional environmental problem-solving
• Availability of sister programs at the UC Sacramento Center and UC Washington Center
• Existing programs at JMIE and PIEEE that place students into experiential learning environments
• Virtues of life and work in Northern California
• Attraction of a one-year program

Over 20 other environmental policy and management graduate degree programs at other universities are summarized in Appendix B. The Davis program will differ from many existing environmental policy programs because entering students will have scientific and quantitative backgrounds. It seems appropriate to house such a program on a campus that is strong campus-wide in the environmental sciences. Instead of teaching policy to people with policy backgrounds, we expect to mostly be teaching policy and management to people with scientific backgrounds, to better assist them integrating science into policy.

Section 4. Faculty
The faculty for this graduate program will include existing UC Davis faculty members and two new hires in the environmental policy and management area, committed through the Provost’s Hiring Investment Program. One job search is complete (Dr. Frances Moore, Climate Change Policy, DESP). The other search has a job offer in the hands of the preferred candidate (Climate change ecologist, WFCB). The teaching staff also will include professionals from the private or government sectors appointed as Lecturers for their pedagogical and diversity benefits to the program.

4.1 Current UC Davis faculty members
The initial faculty members of the graduate group appear in the table below. Additional faculty members are expected to express interest as the program becomes established. Many of these faculty members have expressed interest in regularly teaching courses in this program (primarily on a non-overload basis). These faculty members responded to a broad email to faculty who either a) entered themselves onto the list of JMIE affiliated faculty in the environmental policy and practice area or b) were otherwise known to have interests in this field. Most of these faculty members have been involved in discussions regarding this proposal over the past year and a half.
### 4.2 Initial Graduate Group Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Department/School</th>
<th>Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gwen Arnold</td>
<td>Assistant Professor</td>
<td>Environmental Science &amp; Policy</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td>Tim Caro</td>
<td>Professor</td>
<td>Wildlife Fish and Conservation Biology</td>
<td>Wildlife Conservation</td>
</tr>
<tr>
<td>John Eadie*</td>
<td>Professor</td>
<td>Wildlife Fish and Conservation Biology</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>Susan Handy</td>
<td>Associate Professor</td>
<td>Environmental Science and Policy</td>
<td>Land Use</td>
</tr>
<tr>
<td>Thomas Harter*</td>
<td>Extension Specialist</td>
<td>Land Air and Water Resources</td>
<td>Groundwater Hydrology</td>
</tr>
<tr>
<td>John Largier</td>
<td>Professor</td>
<td>Bodega Marine Lab</td>
<td>Marine Policy</td>
</tr>
<tr>
<td>Jeff Loux</td>
<td>Adjunct Assistant Professor</td>
<td>Landscape Architecture</td>
<td>Environmental Planning</td>
</tr>
<tr>
<td>Mark Lubell</td>
<td>Assistant Professor</td>
<td>Environmental Science and Policy</td>
<td>Environmental Policy-making</td>
</tr>
<tr>
<td>Jay Lund</td>
<td>Professor</td>
<td>Civil &amp; Environmental Engineering</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>Deb Niemeier*</td>
<td>Professor</td>
<td>Civil and Environmental Engineering</td>
<td>Transportation and Air Quality</td>
</tr>
<tr>
<td>James Quinn*</td>
<td>Professor</td>
<td>Environmental Science and Policy</td>
<td>Environmental Data</td>
</tr>
<tr>
<td>Jim Sanchirico</td>
<td>Professor</td>
<td>Environmental Science and Policy</td>
<td>Environmental Economics</td>
</tr>
<tr>
<td>Mark Schwartz</td>
<td>Professor</td>
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<td>Conservation Policy</td>
</tr>
<tr>
<td>Dan Sperling</td>
<td>Professor</td>
<td>Civil &amp; Environmental Engineering &amp;/Environmental Science and Policy</td>
<td>Transportation and Energy Systems</td>
</tr>
<tr>
<td>Mike Springborn</td>
<td>Assistant Professor</td>
<td>Environmental Science &amp; Policy</td>
<td>Resource Economics</td>
</tr>
<tr>
<td>Brian Todd</td>
<td>Assistant Professor</td>
<td>Wildlife Fish and Conservation Biology</td>
<td>Wildlife Conservation</td>
</tr>
<tr>
<td>Tom Young</td>
<td>Associate Professor</td>
<td>Civil &amp; Environmental Engineering</td>
<td>Environmental Engineering</td>
</tr>
</tbody>
</table>

*faculty have expressed interest, but support letter is lacking.

### 4.3 New UC Davis faculty members

In addition to the faculty above, two new faculty members are being hired, as described in the letter of support from the Provost. These faculty members would be housed in an existing department with a substantial portion of their appointment being dedicated to this program. The new hires will be permanently attached to DESP and WFCB, with those departments designating a 2 course commitment of existing faculty members to be dedicated to this program.
The arrangements for new and existing faculty to be dedicated to teach and serve in the graduate program are documented in memoranda of understanding among the Departments and Deans involved.

Specific position descriptions and recruiting priorities will be determined in discussion with faculty and administrators on the campus to ensure a good mix of participation of existing faculty in the program and the most promising integration of new faculty into this program as well as other environmental units and programs on the campus. This is anticipated to be complete in early fall 2014 and this dossier will be updated as decisions are made.

**Campus support**

Attachment 9 of the proposal package contains support letters from the Deans of Graduate Studies and CAES, as well as from chairs of several graduate programs on campus. These letters are supportive and enthusiastic about having such a program complement their activities on the UC Davis campus. All responding programs find that the proposed Master of Science in Environmental Policy and Management would strengthen their existing programs and the campus as a whole.

**Section 5. Courses**

The majority of courses for this program would be new. Where possible, individuals slated to teach courses are identified below. Courses will be staffed with existing faculty (200A,B,C) and faculty hires (203A,B, EPM 297), augmented by limited use of Lecturers (201, 202). We currently envision a need to use Lecturers because our current faculty in the UC Davis Law School (R. Frank, A. Lin) and the Graduate School of Management (A. Hargadon) are interested in the program, but fully booked with other teaching commitments. The program will first seek to engage professors from these campus-based professional programs to fulfill critical teaching in these areas. Failing to engage regular faculty in this teaching, we will seek to engage Lecturers to staff areas such as environmental law, in which existing faculty are unavailable. All Lecturers are expected to have terminal degrees in appropriate disciplines (e.g., J.D. to teach environmental law) and appropriate professional experience (e.g., work in environmental law). We anticipate that this will be two or fewer courses per year. Courses offered for this program also would benefit other degree programs on campus, given the great interest many graduate students have in environmental policy and management. The new courses here would be submitted for approval to the courses committee following approval of this graduate program.

**EPM 200 A, B, C: Analysis of Environmental Policy I, II, III** (3 courses, one course each quarter – 4 units each) (Schwartz, Arnold (cross-list ECL212A), Springborn (cross-list ECL212B)

**EPM 201: Environmental Law.** (Fall, 3 units, contract teaching)

**EPM 202: Administration and Management** (Fall, 4 units, various, mostly contract teaching)
**EPM 203 A, B: Policy Studio** (4 units, Fall Winter, Spring) (team taught by faculty core, focusing on the different thematic areas, coordinated by new HIP hires)

**EPM 297: Professional Development Seminar** (3 courses – 1 unit each; new HIP hires as coordinator(s)) (focusing on professional development, linked to Policy Studio EPM 201 in winter and spring quarters). Required each quarter.

**5.1 Brief course descriptions:**
Expanded course outlines for new courses proposed for this graduate program appear in Appendix C.

a) *Analysis of Environmental Management and Policy I, II, III* (EPM 200 A, B, C) (3 courses, one course each quarter – 4 units each, except 3 units in Spring)

These courses will present quantitative, analytical approaches to managing environmental problems and developing and evaluating environmental policies. Topics would include: intermediate micro-economic concepts, benefit-cost analysis, development of quantitative performance indicators, decision theory, elementary risk assessment, simple optimization, simulation techniques – including Monte Carlo simulation, and economic concepts of management and analysis. The course will combine policy science, political science, economic and engineering analysis concepts and methods of policy and management problems. Examples would include policy, planning, and operational management problems.

b) *Environmental Law* (EPM 201) (3 units, Winter)

Environmental and administrative law as applied to environmental policy and management. National, state, and local legal aspects of environmental management.

c) *Strategies of Environmental Administration & Management* (EPM 202) (3 units, Fall)

The course will review the range of environmental problems (air, water, land, and biological system management). The political, legal, and historical contexts of these problems would be developed. The range of management options commonly available would be discussed, such as traditional engineering solutions, economic concepts (e.g., markets and prices), and integrated solutions. Common pluralistic decision processes would be introduced and discussed. This course would provide an historical overview of strategies used for the management of natural resources, particularly in the U.S. The course will focus on the strengths and limitations of a variety of policy instruments, such as acquisition, command and control regulation, economic incentives, consumer education, and collaborative decision processes.

d) *Policy Studio* (EPM 203 A, B).

This course will be a hands-on, experiential course that will use groups to focus on a single problem of global significance. Students will engage, in groups of ~ 5 students, on a global environmental problem. They will then explore that problem from local to global scales from a variety of perspectives. Students will analyze the political, legal, social and economic issues that drive the potential solution sets for policies. Students will analyze the scientific and technical information base and do an assessment of value of new information to reduce uncertainty and
change policy. A suite of resource people will be engaged to instruct short modules to support analyses (e.g., value of information, structured decision-making). The aim will be a publishable white paper analysis that focuses on a targeted audience (e.g., policy-makers) and who has the opportunities to take what actions to alter environmental outcomes. Faculty mentors will mostly come from the science and technology sectors (STEM faculty); Professional advisors will come from the private sector. Multiple small sections will be offered each quarter. All students will be required to complete two quarters of studio work.

e) Professional Development Seminar (EPM 297, 1 unit, Fall, Winter, Spring)
The program will offer weekly seminars. Guest speakers will be drawn from a pool of policy professionals. The seminar speakers will be asked to focus their talks on two issues: a central policy problem where there is current debate (e.g., the peripheral canal) describing the problem and policy options, and the barriers that constrain policy options. Second, speakers will be asked to specifically describe their role in the problem as a way of describing the professional activities of people in the professions that the program intends to populate. The seminar will have a faculty advisor, but will be hosted by students.

Section 6. Resource requirements

In addition to the two faculty positions awarded through the HIP, a Senior Fellow in environmental policy would provide an additional instructor in the curriculum and policy contact. The Senior Fellows would be drawn from such recent or current experience as California Bay-Delta Authority Science Program Director, CalEPA Director, Resources Agency Director, Federal agency directors or deputy directors (e.g., EPA, USBR, USFWS), directors of major environmentally-related organizations, or deputy directors for such organizations. Some administrative support, developmental support, and financial aid support also would be required. Some of the administrative resources for this program are already included in the JMIE budget; however, additional support from campus will be needed to ensure the program’s success.

6.1. Faculty FTE
Two additional faculty FTE are required, and have been committed by the Provost. One search has been successfully completed, the other is nearing completion with an offer in the hands of the preferred candidate. Both prospective faculty are eager to participate in this degree program. Departments who are recipients of the positions have each committed their departments to 2 courses per year taught by their faculty in support of the degree program.

6.2. Library acquisition – Evaluated as per librarian and library committee recommendations from April 27, 2015 we see no specific required acquisitions at this time.

6.3. Computing costs – none

6.4. Equipment – no special lab or instructional equipment required
6.5. Space and other capital facilities
The JMIE barn is re-designing its upstairs to provide multi-purpose space for a variety of student groups. This includes meeting space for some graduate student associations, student chapters of professional societies and diversity enhancing student groups. This space will also serve as a focal space for students in the EPM program to gather, collaborate, discuss and build a social network among colleagues. Space for faculty will be provided by home departments. There is no dedicated graduate student office or lab space since this is not a research degree.

6.6. Other operating costs
Operating costs will include:
   a) Standard Graduate Group Chair stipend, provided by the Dean of Graduate Studies (estimated as $3,100 per year);
   b) Administrative support to cover 1.0 FTE of an Academic Coordinator ($85,000). This academic coordinator has three roles. First, this person will be 33% Student Affairs Officer to support the Graduate Group. Second, this person will be 33% Communications Officer, to publicize the degree program and recruit students. Third, the person will be 33% practicum liaison to help facilitate practicum internships for students and track progress of students in delivering the contractual obligations of the practicum.
   c) Administrative support also includes the cost of telephone, Xeroxing, computer hardware and software and miscellaneous office supplies as well as an initial fall orientation trip for students to meet and bond with their cohort. This cost, estimated as $17,000 per year, will be split between the Dean of Graduate Studies and the Academic Deans.
   d) At full capacity, four to eight NRST Fellowships @ $7,550 each (~$30-60k). These funds will come from Graduate Program Fellowship Allocation (formerly block grant money) funding (~$2000/student). For a program of 30 students, this will generate ~$60,000.
   e) Support for teaching fellows will be provided at an estimated cost of $30,000 per year. Experienced policy-makers would be recruited to come to Davis through a fellows program whereby senior professionals work on the development of an innovative environmental policy combined with lectures and classroom instruction. Funding for this item will also be sought from off-campus sources. The viability of the program will not be affected by delays in raising off-campus funds for this aspect of the program.
   f) Funding of release time of $8000 per course taught, or contract teaching, for one course (Environmental Law, Management and Administration) along with two of the three of Policy Studios each year. This yields a total cost of $24,000/ year.

Funding for this program will be derived from student fees under the new graduate program funding model. This model includes 33% of $11,200 or $3,736 per student of regular tuition will be returned to the lead dean for the program (CAES; See attached MOU). In addition, 50% of Nonresident Supplemental Tuition or $7,550 per nonresident student would be returned to the program via Graduate Studies.
A proposed program of 20 to 40 students, with 50% non-resident participation (all domestic non-California residents will be non-residents for the duration of their 1 year program) would return $75-150k in fees to the lead dean, and an estimated $75-$151k in NRST. We have A MOU with the College of Agricultural & Environmental Sciences to provide initial start-up funding and return 85% of student credit hour funds into the program for the first 5 years. At 20 students, this would generate $63,512 per year in fees, $75,500 in NRST and $40,000 in block grant ($2000/student). This total of $179k would be used to cover the estimate annual cost of administration ($100k), and teaching ($29k) and student support ($50k). Excess funds would go to pay visiting fellows and augment student support.

Section 7. Graduate student support

Students enrolled in this program are expected to be self-supporting, either from their own resources, support of sponsoring employers, or external fellowship support. Some internal fellowship support is expected to be important for bringing the most promising students to UC Davis from across the nation. As presented in the roll-out strategy, fundraising for student fellows is seen as an important part of the program, but at this time we are unsure how successful such fund-raising will be.

For the practicum projects, we will seek external agency and NGO financial sponsorships, which might partially fund student programs. We have successfully begun this program with a practicum partnership program with The Nature Conservancy in 2013/14 that raised $16,000 to support four student projects.

No teaching assistantships will be devoted to this program.

Section 8. Changes in Senate regulations

None are required.
Appendix A
Other UC Davis Graduate Programs in Environmental Policy

This appendix contains descriptions of other disciplinary programs at UC Davis that frequently contain graduate students with interests in environmental policy and management. While such programs have great merit, they do not offer a cohesive educational experience for high-level professional practice in environmental policy and management. It is expected that students would commonly earn dual degrees in these fields together with a Master’s in Environmental Policy and Management.

Research-Oriented Graduate Programs
The following programs offer master’s degrees in disciplinary areas of research that can be related to environmental policy and management. Other graduate programs at UC Davis could conceivably have graduate students with environmental policy and management specializations, but such students are seen as infrequent.

The proposed Master’s Degree in Environmental Policy and Management differs from the following degrees in having a professional practitioner nature, without an academic research focus.

- Agricultural and Resource Economics
- Civil and Environmental Engineering
- Ecology (particularly the Environmental Policy Area of Emphasis)
- Economics
- Geography
- Human and Community Development
- Hydrologic Science
- International Agricultural Development
- Political Science
- Sociology
- Transportation Technology and Policy

Professionally-Oriented Graduate Programs
The following programs offer professional degrees with students interested in environmental policy and management. These programs are designed to prepare students to practice a profession. We anticipate there will be some demand to combine these professional degrees with broader training through the proposed Master’s in Environmental Policy and Management. Most prospective students in the Master’s in Environmental Policy and Management, however, will not be seeking positions that require these particular professional credentials.

- Law, Management, Public Health
Appendix B
21 Environmental and Public Policy Programs/Schools

American University (Washington, DC) - School of International Service
http://www.american.edu/sis/fields/envpol/index.html
“The (MA) Program is a multi-disciplinary course of study that cultivates an understanding of the bio-physical dimensions of environmental issues as well as the socio-economic and political processes that shape the relationship between human beings and the natural environment.”

Bard College (N.Y.) - Bard Center for Environmental Policy
http://www.bard.edu/cep/
“At the core of the Center is an innovative graduate program leading to either the Master of Science degree in environmental policy or a Professional Certificate in environmental policy. The emphasis on science-based policy permits the student to move from what is known about the issues to formulating feasible, effective policies for dealing with them.”

Carnegie Mellon - Heinz School of Public Policy and Management
http://www.heinz.cmu.edu/prospective/degrees.html
Offers Master of Science in Public Policy and Management (MSPPM), as well as several other related Master’s degrees.

Columbia – School of International and Public Policy
http://www.columbia.edu/cu/mpaenvironment/pages/program.html
The Master of Public Administration in Environmental Science and Policy trains sophisticated public managers and policymakers, who apply innovative, systems-based thinking to environmental issues.

Cornell - Policy Analysis and Management
http://www.gradschool.cornell.edu/academics_research/fields/pam.html
Offers a Master in Health Administration

Duke - Nicholas School of the Environment
http://www.env.duke.edu/esp/
Offers 2 Professional graduate programs: 1) Master of Environmental Management and 2) Master of Forestry; joint degree programs with other professional schools

Harvard - Kennedy School of Government
http://www.ksg.harvard.edu/apply/
2-year Master’s professional program. Seek students with 1-3 years of experience after the undergraduate degree.
Indiana University - *Bloomington School of Public and Environmental Affairs*

Johns Hopkins - *School of Advanced International Studies (in Washington, DC)*
[http://www.sais-jhu.edu/](http://www.sais-jhu.edu/)
“...one of the nation's leading graduate schools devoted to the study of international relations. The school is neither a vocational, purely scientific, nor a liberal arts school dedicated to the pursuit of learning for learning's sake. At SAIS, the wisdom of universities, business, and labor merge with the knowledge and expertise of those currently engaged in government, foreign affairs and international economic practice.”

MIT - *Professional Master's Program*
“Professional Master's Degree Program is an intense, quantitative program open to highly motivated students with undergraduate degrees in geoscience, physics, chemistry, mathematics, or engineering.”

University of Pennsylvania - *College of General Studies*
[http://www.sas.upenn.edu/CGS/grad/mes/](http://www.sas.upenn.edu/CGS/grad/mes/)
“Within its twelve schools, the University encompasses programs and faculty who address aspects of environmental analysis and management from many perspectives. Whether the aim is to assess the risk of exposure to toxic substances, to plan for energy efficient land use, or to evaluate the impact of man on the global climate, members of the University faculty continue to play a major role in shaping the ongoing dialogue about the relationship between humans and the environment. The Institute for Environmental Studies (IES) at Penn draws these individuals into a focused intellectual community which forms an academic base for the graduate program in Environmental Studies.”

Princeton - *Woodrow Wilson School of Public and International Affairs*
Offers: 1) Master's in Public Affairs (MPA) program (2-year master's degree) and 2) Master's in Public Policy (MPP) program (1-year midcareer master’s degree)

Stanford - *Interdisciplinary Graduate Program in Environment and Resources*
Offers: 1) PhD in Interdisciplinary Environmental Studies and 2) Dual Master's in Environmental Studies along with professional degrees in Law, Business, etc. (45 units)

UC Berkeley - *Environmental Science, Policy, and Management*
[http://cnr.berkeley.edu/espm/gradprograms/grad_programs.html](http://cnr.berkeley.edu/espm/gradprograms/grad_programs.html)
“The Department of Environmental Science, Policy, and Management (ESPM) offers both the Ph.D and M.S. degrees in Environmental Science, Policy, and Management.”
UC Berkeley - Richard & Rhoda Goldman School of Public Policy
http://socrates.berkeley.edu/~gspp/
“...prepares students for careers including policy analysis, program evaluation, and management and planning.”

UC Santa Barbara - Donald Bren School of Environmental Science and Management
http://www.esm.ucsb.edu/
“The Master’s of Environmental Science and Management (MESM) is a two-year professional degree designed for individuals who plan to enter or re-enter the workforce upon graduation from the program. Students who have graduated from the program have found employment with government agencies (regional, state, and federal), corporations, non-profit organizations, and environmental consulting firms.”

UCLA - Luskin School of Public Affairs
http://luskin.ucla.edu/content/master-public-policy
“The Master of Public Policy is a two-year professional degree program. The curriculum consists of core courses that provide students with general analytic tools that are applicable in all policy areas, and culminates in an advanced, team-based final project that prepares students for real-world client interactions. For this final project, which is called the Applied Policy Project (APP), students work together and apply key skills in negotiation, analysis, research, presentation, and persuasion to advocate a “best” answer for a given policy problem. Additionally, elective and concentration courses provide content expertise in specific areas of public policy including the following: crime and drugs, education, employment and labor, environmental, health, international, nonprofit, regional development, social welfare, transportation, and urban poverty.”

U. of Colorado - Graduate Certificate in Environmental Policy
http://www.colorado.edu/EnvironmentalPolicyCertificate/
“The Graduate Certificate Program in Environmental Policy provides an interdisciplinary specialization for students in M.A., Ph.D., and J.D. programs ... Environmental issues--water policy, wilderness preservation, air quality, energy development, and global change--transcend ordinary academic boundaries. Policy analyses to deal with these problems must integrate insights and information from many different disciplines. The Graduate Certificate program draws on courses in Anthropology, Economics, EPO Biology, Geography, Philosophy, Political Science, Psychology, Sociology, the College of Architecture and Planning, the College of Engineering and Applied Science, the School of Journalism and Mass Communication, and the School of Law.”

U. of Michigan - School of Natural Resources and Environment
http://www.snre.umich.edu/faculty-staff-directory/list.html?unit_id=31
“...an assortment of ... degrees or certificates: Master of Landscape Architecture, Master of Science in Natural Resources and Environment, Doctorate in Natural Resources and Environment, Doctorate in Landscape Architecture, Graduate Certificate Programs, Dual and Student-Initiated Degree Programs, Graduate Non Degree Programs”
**U. of Minnesota - Herbert Humphrey Institute of Public Affairs**

“Master of Public Policy degree provides an in-depth education in public management and policy analysis techniques ... All students gain core knowledge of microeconomics, quantitative analysis, and political/organizational analysis.”

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**U. of Wisconsin - Policy Programs**
[http://www.wisc.edu/grad/education/acadprogs.html](http://www.wisc.edu/grad/education/acadprogs.html)

Offers 3 Public Affairs programs

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**U. of Washington (Seattle) - Program on the Environment**

“... offers an exceptionally diverse range of graduate degree programs in environmentally related fields. Degree programs span the breadth of the physical, natural, and social sciences, as well as the humanities, ...”

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**Yale - Yale School of Forestry and Environmental Studies**
[http://www.yale.edu/forestry/academics/masters.html](http://www.yale.edu/forestry/academics/masters.html)

“... offers four two-year master's degrees: the professionally-oriented Master of Environmental Management and Master of Forestry, and the research-oriented Master of Environmental Science and Master of Forest Science. Each of the degrees will serve as preparation for either professional employment or doctoral study.”
Expanded Course Outline for:

EPM 200A: Analysis of Environmental Management and Policy III

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW Effective:
Course Subject Area: Analysis of Environmental Management and Policy
Subject Code: EPM Course Number: 200A
Descriptive Title: Environmental Policy Analysis I
Abbreviated Title: Environmental Policy Analysis I
Units: 4
Learning Activity 1st LEC 4.0 hrs/wk
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s): Statistics,
Restrictions on Enrollment: None
Course Description: This course introduces students to principles of rational decision making and applications to public policy problems. Emphasis in this course is on structuring a decision and managing projects in the environment. The course is a hands-on course in which students develop models of natural system/human interaction, parameterize them by gathering data and testing hypotheses. Students will use models, and their uncertainty, to predict the potential implications of various policy options.

General Education: None.
Cross Listing: None
Justification:
Repeat Credit: No Credit Limitations: none
Mode of Grading: Letter
Quarters to be Offered: III Each Year
Instructors Name(s): Title(s):
Remarks:
Expanded Course Description

1. **TOPICAL OUTLINE:**

   I. Frameworks for Decision Making and Project Management
      - Structured Decisions
        - Scenario Planning, forecasting, backcasting, vulnerability assessment
      - Results-Based Management
      - Adaptive Management
      - Evidence based Management
   
   II. Supporting Decisions
      - Optimization and Simulation Models
      - Back of the Envelope Calculations
      - Abstraction, Scaling, Dimensions
      - Equilibria and Steady States
      - Decisions under uncertainty
   
   IV. Case Studies and Examples
      - CO2 Buildup
      - Acid Rain
      - Population Growth
      - Biomagnification
      - Pollutant Flow
      - Biodiversity and Natural Reserves
      - Fisheries and Renewable Resource Management

2. **READING:**
   
   
   
   

3. **GRADING PERCENTAGES AND COURSE REQUIREMENTS:**
   
   Letter grade based on midterm exam 25%, final exam 30%, class exercises 35%, and class participation 10%.

4. **COURSE FORMAT AND REQUIREMENTS:** This course meets for 10 weeks.

5. **EXPLANATION OF POTENTIAL COURSE OVERLAP**

6. **GENERAL EDUCATION JUSTIFICATION:** None needed.

7. **ADDITIONAL INFORMATION FOR STUDENTS:** None
Expanded Course Outline for:

EPM 200B: Environmental Policy Analysis II

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW  Effective:
Course Subject Area: Analysis of Environmental Management and Policy
Subject Code: EPM  Course Number: 200B
Descriptive Title: Environmental Policy Analysis II
Abbreviated Title: Environmental Policy Analysis II
Units: 4
Learning Activity 1st LEC 4.0 hrs/wk
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s): Analysis of Environmental Management and Policy I
Restrictions on Enrollment: None
Course Description: This course introduces students to methods of rational decision making and applications to public policy problems. Emphasis is on how information can be organized in ways that illuminate the consequences of various policy options. The focus is on quantitative methods, including deterministic and stochastic modeling, simulation and optimization, and techniques of decision analysis.
General Education: None.
Cross Listing: None
Justification:
Repeat Credit: No  Credit Limitations: none
Mode of Grading: Letter
Quarters to be Offered: II Each Year
Instructors Name(s):  Title(s):
Remarks:
Expanded Course Description

1. TOPICAL OUTLINE:

   I. Analytical Methods for Policy Analysis
      Foundations of Decision Analysis
      Establishing the Context
      Laying Out Alternatives
      Predicting Consequences
      Valuing Outcomes
      Making Choices

   II. Models of Choice
      Decision Maker Preferences
      Constraints and Tradeoffs
      Marginal Analysis
      Multi-Objective Analysis
      Time, Discounting, and Dynamic Choice

   III. Techniques for Policy Analysis Modeling
      Models and the Process of Modeling
      Deterministic vs. Stochastic Models
      Difference Equations and Dynamics
      Markov Models, Queuing Models
      Simulation Methods
      Optimization Models
      Decision Analysis

   IV. Case Studies

2. READING:
   Stokey, Edith and Richard Zeckhauser, A Primer for Policy Analysis, W.W. Norton

3. GRADING PERCENTAGES AND COURSE REQUIREMENTS:
   Letter grade based on midterm exam 25%, final exam 30%, class exercises 35%, and
   class participation 10%.

4. COURSE FORMAT AND REQUIREMENTS: This course meets for 10 weeks.

5. EXPLANATION OF POTENTIAL COURSE OVERLAP: There is potential for overlap with
   ESP 168A,B.

6. GENERAL EDUCATION JUSTIFICATION: None needed.

7. ADDITIONAL INFORMATION FOR STUDENTS: None
Expanded Course Outline for:

EPM 200C: Analysis of Environmental Management and Policy III

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW  Effective:
Course Subject Area: Analysis of Environmental Management and Policy
Subject Code: EPM  Course Number: 200C
Descriptive Title: Environmental Policy Analysis III
Abbreviated Title: Environmental Policy Analysis III
Units: 4
Learning Activity 1st LEC 4.0 hrs/wk
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s): Environmental Management and Policy II
Restrictions on Enrollment: None
Course Description: This course provides a foundation for thinking about the role of environmental policy in a mixed private/public economic system. It reviews basic concepts from economic theory and identifies how and why environmental problems emerge in a market economy. Methods of solving environmental problems are discussed, leading to further discussion of tools of analysis necessary to achieving desirable policy outcomes
General Education: None.
Cross Listing: None
Justification:
Repeat Credit: No  Credit Limitations: none
Mode of Grading: Letter
Quarters to be Offered: I Each Year
Instructors Name(s):  Title(s):
Remarks:

Expanded Course Description
1.  TOPICAL OUTLINE:

   I. Resource Flows and Environmental Services
      Resource Extraction, Mass Balance, and Residuals
      Emissions, Ambient Quality, Sustainability
      Scale, Time, and Spatial Issues
   II. The Economy and the Environment
      Individual Choice, Utilitarianism, and Ethics
      Legal, Social, and Political Institutions
      Property Rights, Private and Public Goods
III. Markets, Efficiency, and Distribution
   Willingness to Pay and Private Benefits
   Scarcity, Costs, and Technology
   Market Allocation, Efficiency, and Distribution

IV. Theories of Market Failure
   Externalities and Public Goods, Open Access and the Commons
   Transactions Costs and Non-convexities
   Asymmetric Information
   Rent Seeking and Political Economy

V. Solving Environmental Problems
   Benefits and Costs of Pollution Control
   Methods of Estimating Damages
   Criteria for Evaluating Options
   Command and Control vs. Incentive-Based Strategies

VI. Environmental Policy in the U.S.
   Environmental Law and Institutions
   Social Values and Value Judgment
   The Role of Science and Policy Analysis
   Scientists and Policy Analysts in the Policy Process

2. READING:

3. GRADING PERCENTAGES AND COURSE REQUIREMENTS:
   Letter grade based on midterm exam 25%, final exam 30%, class exercises 35%, and class participation 10%.

4. COURSE FORMAT AND REQUIREMENTS: This course meets for 10 weeks.

5. EXPLANATION OF POTENTIAL COURSE OVERLAP: There is potential for partial overlap with ARE 147, 175, and 176.

6. GENERAL EDUCATION JUSTIFICATION: None needed.

7. ADDITIONAL INFORMATION FOR STUDENTS: None
Expanded Course Outline for:

EPM 201: Environmental Law

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW  Effective:
Course Subject Area: Environmental Law
Subject Code: EPM  Course Number: 214
Descriptive Title: Environmental Law
Abbreviated Title: Environmental Law
Units: 3
Learning Activity 1st LEC 3.0 hrs/wk
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s): Graduate standing
Restrictions on Enrollment: None
Course Description: This course provides a basic foundation for understanding environmental law. Topics covered will include the roles of legislatures, administrative agencies, and the courts in creating and interpreting the law; the special difficulties environmental problems present for law; the roles of public and private law in resolving environmental conflicts; the key legal strategies for addressing environmental problems; the major federal environmental statutes; and the relationship between federal and state/local legal authority.
General Education: None
Cross Listing: None
Justification:
Repeat Credit: No  Credit Limitations: none
Mode of Grading: Letter
Quarters to be Offered: I Each Year
Instructors Name(s):  Title(s):
Remarks:

Expanded Course Description

1. TOPICAL OUTLINE:
I. INTRODUCTION AND PERSPECTIVES
What is Environmental Law?
   Insights from Ecology and Economics
   The Role of Values
   Institutions and the Basics of Law
II. ENVIRONMENTAL COMMON LAW
   Common Law Environmental Doctrines
   Common Law Versus Public Law
III. ADMINISTRATIVE LAW OF THE ENVIRONMENT
The Administrative Decisionmaking Process
Introduction to Standing
Introduction to Judicial Review

IV. NEPA AND THE POWER OF INFORMATION
The Duty to Prepare an EIS
Contents of the EIS
Evaluating NEPA and Other Information-Based Strategies

V. THE CLEAN AIR ACT: AIR QUALITY STANDARDS, TECHNOLOGY FORCING AND HARNESSING THE MARKET
Air Quality Criteria and Standards
State Implementation Plans – Cooperative Federalism
Automobile Emissions and Technology Forcing
Tradeable Emission Permits

VI. ENVIRONMENTAL ENFORCEMENT (the Clean Water Act)
Overview of Government Enforcement
Criminal Enforcement
Citizen Suits

VII. ENVIRONMENTAL FEDERALISM
Historical and Theoretical Background
Constitutional Federalism: Sources of and Limits on Federal Power
Preemption

2. READING:

3. GRADING PERCENTAGES AND COURSE REQUIREMENTS:
   Letter grade based on midterm exam 35%, final exam 50%, and class participation 15%.

4. COURSE FORMAT AND REQUIREMENTS: This course meets for 10 weeks. The format is lecture / discussion.

5. EXPLANATION OF POTENTIAL COURSE OVERLAP: There is potential for overlap with ESP 161 and Law 285. Law 285 is a semester course rather than a quarter course, and therefore would be difficult for students in the graduate program to fit into their schedules. It also assumes that students have taken the first-year law school curriculum. This proposed course would be aimed at students without that background.

6. GENERAL EDUCATION JUSTIFICATION: None needed.

7. ADDITIONAL INFORMATION FOR STUDENTS: None
Expanded Course Outline for:

EPM 202: Strategies of Environmental Administration & Management

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW Effective: Fall 2006
Course Subject Area: EPM
Subject Code: EPM Course Number: 202
Descriptive Title: Strategies of Environmental Administration and Management
Abbreviated Title: Strategies of Env. Admin & Mgmt.
Units: 3
Learning Activity: Lecture/Discussion (LED) 3.0 hrs./wk
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s):
Restrictions on Enrollment: None
Course Description: Bureaucracy and public management. This course will stress organizational theory and the external / internal factors affecting bureaucratic behavior. Covers detailed analysis of environmental policy for agencies such as the Environmental Protection Agency, US Forest Service, and National Park Service. Provides historical overview of strategies used for the management of natural resources, particularly in the U.S. Reviews several eras and their characteristic strategies; analyzes the strengths and limitations of policy instruments used in U.S. and Western Europe over last 50 years.

General Education: None
Cross Listing: None
Justification: N/A
Repeat Credit: No
Credit Limitations: None
Mode of Grading: Letter
Quarters to be Offered: I, Every Year
Instructors Name(s):
Remarks:

1. TOPICAL OUTLINE:
   I. Organizational Theory
      b. Organizations as Rational Systems, Natural Systems. Open Systems
      c. Organizational Environments, Networks and Leadership
   II. Controlling Bureaucracy
      a. Political control of the bureaucracy and sources of bureaucratic power
      b. Administrative procedures and law
      c. Civil service system
d. Interagency cooperation

III. Environmental Agencies
   a. US Environmental Protection Agency
   b. Forest Service
   c. Bureau of Land Management
   d. National Park Service
   e. Army Corp of Engineers

IV. Eras of Environmental Management in the U.S.
   a. The 19th Century: Markets by Default
   b. The Progressive Era and New Deal: Faith in Neutral Expertise
   c. The Environmental Era: Faith in Regulation
   d. Post-1980: Wicked Problems and the Global Dimension

V. Policy Instruments: Strengths and Limitations
   a. Acquisition, subsidies, planning
   b. Command and Control Regulation
   c. Ambient vs. Technology-Based Standards
   d. Economic Incentives: Taxes, tradeable permits
   e. Insurance
   f. Information-Based, Comprehensive, Anticipatory Instruments

2. READING:

3. GRADING PERCENTAGES:
   Letter grading: exams (50%), analytical paper (40%), and class participation (10%).

4. COURSE FORMAT AND REQUIREMENTS:
   This course meets twice weekly for 10 weeks.

5. EXPLANATION OF POTENTIAL COURSE OVERLAP:

6. GENERAL EDUCATION JUSTIFICATION: N/A

7. ADDITIONAL INFORMATION FOR STUDENTS:
Expanded Course Outline for:

EPM 203A,B: Environmental Policy Studio

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW  Effective:
Course Subject Area: Environmental Policy and Management
Subject Code: EPM  Course Number: 203
Descriptive Title: Environmental Policy Studio
Abbreviated Title: Policy Studio
Units: 4
Learning Activity 1st LAB 4.0 hrs/wk
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s): Graduate standing
Restrictions on Enrollment: None
Course Description: Development of Group Project Assessments of critical environmental problems. Teams of students will analyze a policy problem from science, technical, geographical, planning, social values, civil rights, legal, administrative, legislative, and economic perspectives. Students will determine the decision structure, policy opportunities and develop a comprehensive analysis for presentation to policy makers and the academic community. This is a hands-on learning experience where visiting specialists will partner with programmatic faculty to guide, but not instruct, students. Students will do two of these (winter and spring) with different subsets of the cohort.
General Education: None
Cross Listing: None
Justification:
Repeat Credit: No  Credit Limitations: none
Mode of Grading: Letter
Quarters to be Offered: II,III, each year
Instructors Name(s):
Title(s):
Remarks:

Expanded Course Description

1. TOPICAL OUTLINE:
   I. Topic Selection
   II. Literature and data development
   III. Data Analysis
   IV. Major ideas on the topic
   V. Presentation of ideas
   VI. Work plan
2. **READING:**
   TBA

3. **GRADING PERCENTAGES AND COURSE REQUIREMENTS:**
   Letter grade based on exercises 80%, and class presentation 20%.

4. **COURSE FORMAT AND REQUIREMENTS:** This course meets for 10 weeks. The format is lecture / discussion.

5. **EXPLANATION OF POTENTIAL COURSE OVERLAP:** This course overlaps with no other courses.

6. **GENERAL EDUCATION JUSTIFICATION:** None needed.

7. **ADDITIONAL INFORMATION FOR STUDENTS:** None
Expanded Course Outline for:

EPM 297: Professional Development Seminar

Department Submitting Request: Environmental Policy and Management
Request for Action: NEW  Effective:
Course Subject Area: Analysis of Environmental Management and Policy
Subject Code: EPM  Course Number: 297
Descriptive Title: Professional Development Seminar
Abbreviated Title: Seminar
Units: 1
Learning Activity: Seminar; 1 hr/week
In Progress Grading: None
Consent of Instructor: No
Prerequisite(s):
Restrictions on Enrollment: None
Course Description: A weekly seminar inviting policy and management professionals to come and discuss their challenges and achievements.

General Education: None.
Cross Listing: None
Justification:
Repeat Credit: No  Credit Limitations: none
Mode of Grading: Letter
Quarters to be Offered: III Each Year
Instructors Name(s):  Title(s):
Remarks:

Expanded Course Description
1. TOPICAL OUTLINE: Weekly Seminar
2. READING: None
3. GRADING PERCENTAGES AND COURSE REQUIREMENTS: attendance
4. COURSE FORMAT AND REQUIREMENTS: This course meets for 10 weeks.
5. EXPLANATION OF POTENTIAL COURSE OVERLAP
6. GENERAL EDUCATION JUSTIFICATION: None needed.
7. ADDITIONAL INFORMATION FOR STUDENTS: None
Appendix D
Example Jobs in Environmental Policy & Management

The following are job opportunities currently posted on the John Muir Institute’s website.

**Research Analyst, Office of Chief Scientist**

*Ecotoxicology (Assistant Professor, Tenure Track)*

*Area Integrated Pest Management (IPM) Advisor Serving Stanislaus, Merced & San Joaquin Counties*

*Interagency Ecological Program Lead Scientist*

*Area Integrated Pest Management Advisor, Urban Entomology*

*CWC: Community Organizer and a Regional Water Management Coordinator*

*NATURAL RESOURCE OFFICER (Senior Biodiversity Policy Advisor)*

*Assistant Director for Diversity and Expansion/4-H Youth Development Advisor*

*Area Weed Ecology and Cropping Systems Advisor*

*Cooperative Extension Area Advisor: Agricultural Engineering*

Example Current Job Ad:

**Research Analyst, Office of Chief Scientist**

*With world attention focused on both the environment and the economy, Environmental Defense Fund (EDF) is where policymakers and business leaders turn for win-win solutions. This leading green group, with programs from Boston to Beijing, has tripled in size over the past decade by focusing on strong science, uncommon partnerships and market-based approaches. You can be part of a vibrant workplace that welcomes diverse perspectives, talents and contributions, where innovation and a focus on results are a way of life.*

The Office of Chief Scientist is the nexus of science at EDF, ensuring that the natural and social science that is the backbone for all EDF policy positions is based on the best available information. To be most effective in this role the Office of Chief Scientist provides programmatic support for all scientists at EDF and fosters relationships with scientists outside the organization.

**OVERALL FUNCTION**

The Research Analyst will be a key team member in the Office of Chief Scientist, conducting research and analysis on a breadth of technical topics while taking a leadership role in small projects.

This person will report to a Senior Analyst in the Office of Chief Scientist.
KEY RESPONSIBILITIES

- Synthesize complex information and translate it for non-technical audiences
- Interact often with internal and external stakeholders, partners, and consultants with diplomacy and tact
- In conjunction with development and OCS staff, help develop funding proposals, grants, and interim reports to foundations and major donors
- Assist staff with writing white papers, scientific journal articles, op-ed pieces, and blogs to translate research for broad audiences
- Occasionally assist in preparing notes from important internal and external meetings
- Use independent judgment to set day-to-day priorities for meeting project deadlines
- Find, collect and analyze scientific data and prepare synthesis reports
- Synthesize, interpret, and communicate scientific information in an advocacy setting
- Provide initial analyses and recommendations on difficult issues or complex technical topics
- Translate program needs into actionable items (like research) to aid program decision-making
- Identify and troubleshoot routine problems under supervisor’s guidance
- Use independent judgment to plan, prioritize, and organize a diverse workload
- May direct research teams of interns or other analysts to complete timely research and analysis on a wide variety of complex topics
- Occasionally serve as an EDF science representative to ensure EDF’s policies, legal positions, and communications are based on the best available science
- May participate in training/mentoring more junior administrative staff or interns

QUALIFICATIONS

- Knowledge of the principles, concepts, and methods of a relevant technical or scientific field
- Clearly communicate professional and technical information orally and in writing
- Intellectual agility and ability to learn new topics quickly
- Ability to complete small complex projects and research assignments
- Strong computer proficiency, including experience with Excel, Word, and Internet research
- Experience with regression analysis and/or spatial data analysis and visualization preferred
- Affinity for a fast paced work environment
- High attention to detail and organization
- Willingness to travel
- Bachelor’s degree in environmental science or energy-related field with at least three years of related experience or a Master’s degree in environmental science or energy-related field with some professional experience
- Some project management experience preferred
Appendix F
Graduate Group in Environmental Policy and Management Bylaws

Administrative Home: CAES/ESP/John Muir Institute of the Environment

Revision date(s): 11/21/2014

Graduate Council Approval: pending

Article I. Objective

A. Degree(s) offered by the program: M.S. Plan II degree

B. Discipline: Environmental Policy and Management is the application of scientific knowledge to the development of sound environmental policies and natural resource management practices. The program stresses the interrelationships between society, economics, and the environment in developing sustainable solutions to environmental problems.

C. Mission of the Program: The GGEPM will function as a mechanism for curricular structure in training students in environmental policy and management at UC Davis and will foster interactions and collaborations among faculty pursuing applied environmental research through different academic departments. The GGEPM will offer the M.S. Plan II degree only, but can be pursued concurrently with other graduate degree programs.

Article II. Membership

A. Criteria for Membership in the Graduate Program

1. Appropriate academic and teaching title.

   Members must hold an appropriate academic title as outlined in Graduate Council Policy, GC Policy 1998-02. The revised policy is available here: http://gradstudies.ucdavis.edu/graduate-programs/policies

2. Active research appropriate to the discipline(s) encompassed by the program.

   Membership is independent and separate from academic department appointments. Membership is based upon disciplinary expertise and active research, so members throughout campus are eligible for consideration to membership in the group.

   Faculty having active research, strong interest and expertise in environmental policy and management, and whose appointment
authorizes the direction of graduate work, may be elected to membership in the Group by the Executive Committee.

Members must: hold an appropriate academic title as (a) a member of the Academic Senate of the University of California (includes Professors, Lecturers with Security of Employment, Professors in Residence, Professors Emeritus/a, and Research Professors), (b) Adjunct Professor, (c) Lecturer (without Security of Employment) or (d) Lecturer Without Salary. Academic staff with primary appointments as Cooperative Extension Specialists or in the Professional Research series are not eligible to be members of graduate programs unless they also hold an appropriate instructional title (normally Lecturer Without Salary).

3. Voting rights.

All resident members are eligible to vote on graduate program matters. See GC2011-04, Policy on Quorum, Voting Rights and Responsibility.

B. Application for membership.

1. How faculty may apply:

Interested faculty may submit an application for membership to the GGEPM Executive Committee, indicating a willingness to contribute to the Group as defined below in Section B.2. A CV should be enclosed. Applications for membership are reviewed by the Executive Committee to assure that Candidates have a documented record of high-quality scholarly activity (re: training, expertise, and program focus). Factors considered include, but are not limited to: degree training, titles of recent publications, journals published in, titles of grant proposals, teaching EPM courses. Both the quality of the scholarship and its relevance to the field of environmental policy and management are evaluated. The Executive Committee will vote on membership applications at meetings, or via e-mail. A simple majority will determine approval of membership. Membership shall be in accordance with Academic Senate and Graduate Council guidelines.

2. Anticipated contributions that graduate faculty members will perform as a member.

Members are expected to contribute to the GGEPM in ways beyond supervising graduate students. Contributions include: the teaching of EPM courses, service on committees (Executive, Admissions, Seminar, Guidance, Practicum, Policy Studio), and other service deemed appropriate by the Executive Committee. Each member is
also expected to offer an EPM 290, or accepted substitute, once every four years.

C. Emeritus Status.
Emeritus faculty with active research programs may remain members of the program and are afforded the following rights: they may attend and participate in program activities (including meetings and administrative committees), may teach graduate courses, and may serve on student committees. Emeritus faculty are afforded the right to vote on policy and bylaw issues related to the program, provided they inform the GGEPM in writing of their desire to vote.

D. Review of Membership
The criteria for reviewing members of the program is the same for all members. Each faculty member’s contributions to the GGEPM shall be reviewed once every three years for the purpose of identifying faculty members who are not providing a minimal level of contribution to the Group. This review will be conducted by the GGEPM Executive Committee.

The review will focus on three areas: a) mentorship of GGEPM students, b) participation in the GGEPM workload in the classroom teaching mission of the Group and committee work, c) professional productivity in the field of Environmental Policy and Management, and d) administrative service to the Group. Faculty whose record reflects poor performance in any of these areas will be subject to non-renewal or to a probationary period in which greater involvement must be demonstrated as a condition of continuing membership.

E. Membership Appeal Process
Membership applications or applications for membership renewal that are denied may be appealed in writing to the Executive Committee. Applicants denied membership or renewal of membership make a final appeal to the Dean of Graduate Studies.

Article III. Administration
The administration of the program and its activities will be vested in the Group Chair and an Executive Committee.

Article IV. Graduate Program Chair
A. Chair appointment process
The Chair will be appointed in accordance with the Academic Personnel Manual policy UCD-245.B and the policies and procedures of the Graduate Council and the Office of Graduate Studies.

A “Nominating Committee” will be named by the Executive Committee to solicit names of nominees for Graduate Group Chair from the faculty and graduate students of the group. Those nominated will then be contacted regarding their willingness to serve. The names of the nominees who have indicated a willingness to serve will then be submitted to the Group’s faculty and graduate students for comments. All comments will remain confidential.

The Nominating Committee will forward at least one name to the Dean of Graduate Studies along with all comments received on the nominees. All comments solicited from faculty and students of the group will be treated as confidential information by the Group’s Nominating Committee and by the Office of Graduate Studies.

If the Group puts forward more than one nominee, it may express a preference for one and, if it does, should indicate the basis for determining that preference. The nominee(s) may be interviewed by the Dean of Graduate Studies (or delegate) and will then forward his/her recommendation to the Chancellor for appointment. The normal term of the Chair’s appointment is three years, however what is recommended will be based on the nominees’ willingness to serve.

B. Duties of the Chair

The Chair: a) provides overall academic leadership for the program; b) develops and implements policies for the program; c) represents the interests of the program to the campus and University administrators; d) calls and presides at meetings of the Executive Committee; e) calls and presides at meetings of the program; f) is responsible for coordinating all administrative matters with the Office of Graduate Studies; g) manages the budgets of the program; h) submits course change or approval forms; i) is responsible for the accuracy of all publications related to the program including web pages and catalog copy; and j) nominates graduate advisers for appointment.

A Vice-Chair shall be elected by the Group for a two-year term. Election will be conducted at the Annual Spring meeting of the GGEPM or by e-mail. The Vice-Chair is the chair of the GGEPM Admissions Committee for the duration of his or her appointment. The Vice Chair will serve as chief officer of the Group in the absence of the Chair, for less than a quarter. If the Chair will be absent from campus for more than a quarter, the Chair appointment procedures must be followed.
Article V. Committees

Executive Committee
The Executive Committee shall consist of five voting members: the Group Chair, Vice-Chair, and two faculty members elected by the Group, and one GGEPM graduate student appointed by the Chair. The Group Chair shall serve as Chair of the Executive Committee.

Candidates for membership may be self-nominated, or nominated by the membership at large. Election to membership to the Executive Committee will take place at the Annual Meeting. The two candidates with the majority of votes, of eligible members present, will be elected to the Executive Committee for a two-year term. Two members shall be elected each year. All Executive Committee members shall take office on July 1 following election or earlier if a vacancy exists, but the two-year term of office will in any case be counted from July 1 following election. The Group Chair is empowered to fill vacancies by appointment for the unexpired terms of members of the Executive Committee. Executive Committee members may be re-elected for a second term, but must take a “break” after two consecutive terms.

Meetings of the Executive Committee shall be held at least once per year at the call of its Chair. Additional meetings may be called as needed.

As deemed necessary by the Executive Committee or in response to membership concerns, the Executive Committee will provide consideration of changes in policy governing the GGEPM and make recommendations of "minimum requirements for degrees". The Executive Committee is responsible for: evaluation of faculty applications for membership; faculty membership reviews/renewals; approval of changes to the GGEPM curriculum (i.e. educational policy); and as necessary, evaluation of any issues brought to the attention of the Executive Committee by the membership. The Executive Committee is responsible for appointment of subcommittees, and matters in which authority has been delegated by the Group.

Admissions Committee
The Admissions Committee shall consist of the Vice Chair of the program and will be composed of at least three faculty members and two external advisors (e.g., from agencies, NGOs, or consulting firms). The external advisors input will be advisory, with the graduate faculty having the final say in admissions. The Chair of the committee will be the Vice-Chair of the graduate group, and the Vice-Chair will appoint the remaining members to the committee. Committee members will be recommended for a two-year term.
Fellowship Committee
The Fellowship Committee shall consist of three faculty members appointed by the chair of the program for three-year terms renewable two times. The Chair of the Fellowship Committee is an Executive Committee member appointed by the Chair of the program. The functions of the committee include nomination and ranking of students for consideration of university fellowships and awards and identification of students to receive tuition waivers.

Advising Committees
Each student will assemble a committee of three faculty members to advise individual students on relevant coursework, and will advise students in their practicum project. The advising committee shall meet with the student to complete an Advising Committee Report that specifies the coursework required for that student.

Comprehensive Exam Committee
The program will establish a comprehensive exam committee (CEC) each year. The CEC shall consist of three faculty members appointed by the chair for 1 year terms. The Chair of the CEC shall be an Executive Committee member. This committee will be responsible for evaluating students relative to their Policy Studio and Practicum work.

Article VI. Student Representatives

Unless otherwise specified, Student Representatives are elected representatives of the graduate program, approved and appointed to appropriate committees by the GGEPM Chair. The Representative(s) will serve as a voting member of the Executive Committee in all matters except those under the jurisdiction of the Academic Senate. Student representatives to the Admissions and Awards Committees will be voting members of those committees. Student representatives may be excused from committee meetings as necessary (e.g., confidential matters, group financial issues, collective bargaining issues, etc.).

The Chair of any committee with student members must excuse the student representatives from meetings during discussion about other students, personnel actions or disciplinary issues relating to faculty, during rankings of existing students for funding, and for disciplinary issues related to students.

Article VII. Graduate Advisers

The EPM program does not involve specific faculty graduate advisors assigned to students. Students will be advised by (a) the program staff (graduate group chair and program academic coordinator); and (b) the Comprehensive Exam Committee (CEC). The EPM chair and program academic coordinator will be principally
responsible for interviewing and evaluating incoming students with respect to their professional aspirations. The program staff will discuss with the student their quantitative tools needs to recommend an elective course in quantitative methods. The CEC will be principally responsible for evaluating students on studio and practicum work. As such this committee will be responsible to sign off on project proposals for all practicum and studio projects.

Article VIII. Meetings

The Group Chair shall call an annual meeting during Spring quarter for the purpose of electing officers and conducting other business. The Chair shall be privileged to call other meetings in the interest of the Group and shall be required to do so at the written request of three or more members. Notification will be emailed at least two weeks before the meeting. Faculty not on campus may participate by teleconference or other availability technology.

Article IX. Quorum

All issues that require a vote must be:
- Voted on by 50+% of the membership
- On graduate program matters other than amendment/revision of bylaws: passage requires a 50+% supporting vote of the members voting.
- On amendments and revision of bylaws: passage requires a 2/3rds supporting vote of the members voting.

If balloting is conducted via e-mail or web-based technology, 10 days must be provided for expression of opinions about the proposal prior to the acceptance of votes; the program must allow 14 days for votes to be returned or before the "polls are closed."

Article X. Order of Business for Meetings

Meetings shall follow Robert’s Rules of Order.

Article XI. Amendments

Amendments to these bylaws may be made in accordance with program’s quorum policy in Article IX. Program members may propose amendments by petition to the program Chair. The program Chair, or relevant program committee, may ask for revisions from the faculty who submitted proposed amendments before forwarding the revisions to the membership for review and voting. Quorum, voting and passage is prescribed in Article IX. All amendments and revisions must be submitted to the Graduate Council for review and approval; changes in the bylaws will become effective upon approval by the Graduate Council.
Appendix G
Graduate Group in Environmental Policy and Management
M.S. Degree Requirements
Graduate Council Approval: _______________

1. Admission Requirements
Consideration of admission requires a bachelor’s degree, three letters of recommendation, official transcripts and GRE scores from within the past 5 years. TOEFL or IELTS scores are required for international students from non-English speaking countries. There is no expectation of students serving as Teaching Assistants. Those who request consideration of such support will be required to submit TOEFL or IELTS scores.

Students are required to apply to Graduate Studies, with appropriate fees, by January 1 of the academic year preceding program entry. Students will be enrolled as cohorts and no mid-year enrollment will be permitted. Applicants are required to have a minimum undergraduate GPA of 3.0, or the international equivalent. Applicants are expected to have GRE minimum scores of 80% Quantitative, 60% Verbal and 50% Analytical Writing, although exceptions may be made on a case-by-case basis.

Admitted students would be expected to have a scientific, engineering, or technical baccalaureate degree, including courses in introductory environmental sciences, calculus and statistics (taught with calculus). Prior coursework in economics (e.g., intermediate microeconomics) is recommended, but not required. In many cases, such as technical students lacking an economics course, this might be accomplished in the summer prior to beginning the program.

1a. Pre-requisites. Students without a prior degree in a scientific, engineering, or technical field would be required to complete a set of preparatory courses, or their equivalents, to provide them with a fundamental scientific background in environmental science. This scientific training can be in any appropriate scientific discipline. Sciences are taken to mean the STEM (Science, Technology, Engineering, Math) core disciplines. Those with an undergraduate degree in Environmental Studies will be individually evaluated to ensure that they have a minimum of two quarters of introductory science equivalent (e.g., Introductory Biology, BIS 2A, BIS 2B) and two quarters of upper division STEM courses (e.g., EME 150 Mechanical Design, Evolution BIS 100). Pre-requisite decisions will be made by the admissions committee at the time of application decision. There is no foreign language requirement for entry or successful completion of the program.

1b. Deficiencies. Since this is a one year course that begins in fall, no student will be admitted who will not be able, and willing, to fulfill all deficiencies in the summer prior to the commencement of the program.
2. Program of Study: M.S., Plan II only.
This program is designed as a 12 month, coursework centered, terminal practice-oriented master’s degree. As a plan II Master of Science, the degree requires 42 units of graduate (200 series) or upper division (100 series) courses. A minimum of 18 units will be graduate courses in the major field. A comprehensive final exam is required for successful graduation. Neither research nor a thesis is required.

a) Specific fields of emphasis. This program emphasizes the role of scientific and quantitative analysis in environmental policy and management, including both quantitative analysis of environmental problems and the application of science to environmental management and practice. We envision an eventual suite of specialized areas within this broader rubric of environmental policy (freshwater, marine, air quality, biodiversity and conservation, and climate change). Initial coursework will focus on integrating these 5 focal areas.

b) Plans. Only the Plan II (Comprehensive Examination) MS degree is offered.

c) Unit requirements. The proposed Master’s degree in Environmental Policy and Management would be a program of full-time graduate study on the campus and requires 42 units to graduate.

3. Course Requirements – Cores and Electives (42 units)
The curriculum is designed to allow students to complete the degree in 1 calendar year, (possibly 2 if they are combining this with a research degree) consisting of 3 quarters of core classes and electives. A practice-oriented, mentored capstone practicum will be required for graduation (6 units, summer quarter, EPM299). Students may take additional electives beyond the minimum requirement. Expanded course descriptions appear in Appendix D. The EPM is a specialized M.S. program, courses for this program are heavily prescriptive, and students will take most classes with their cohort. As a consequence, a number of new courses will be the backbone of this program. New courses (shown with EPM – Environmental Policy and Practice designation) will be submitted for approval to the courses committee immediately following approval of this program. Core courses, with current faculty expressing interest in regular teaching, appear below:

a) Core Courses
EPM 200 A, B, C: Analysis of Environmental Policy I, II, III (3 courses, one course each quarter – 4 units each) (Schwartz, Arnold (cross-list ECL 212A), Springborn (cross-list ECL 212B)
EPM 202 A, B, C: Policy Studio (4 units, fall; 8 units, Winter, Spring) (team taught by faculty core, focusing on the different thematic areas)
EPM 297: Professional Development Seminar (3 courses – 1 unit each) (focusing on professional development, linked to Policy Studio EPM 203 in winter and spring quarters). Required each quarter.

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b) Electives Courses
The program requires one elective in quantitative analysis. Quantitative analysis can include statistics for non-statistics majors (e.g., STA 100 Applied statistics for Biological Sciences); approaches to quantitative analysis (e.g., ANT 298, Statistical rethinking); or non-statistical quantitative methods (e.g., LDA 185 Concepts and Methods in GIS).

Additional electives are at student discretion. Electives allow students to develop a topical focus or specific policy competence for their program, related to their career interests and their practicum area.

c) Summary
This degree emphasizes experiential learning for students that carry a scientific background into the program. The program creates a relatively simple and highly prescriptive structure. There are seven elements to the degree program: the core course (12 units; graded); quantitative methods (3 units; graded only); law, management and administration requirements (7 units, graded); the policy studio (8 units; graded); professional development seminar (3 units; S/U only), and elective (3 units) and a practicum (6 units, graded). The rationale for each is described below.

1. The EPM Core Course (EPM 200), running three quarters, will present the fundamentals of the policy process, including economic analysis of policy, the policy process, environmental law, environmental management, and environmental administration. This course will focus on teaching fundamental skills to occupy leadership positions within environmental agencies, NGO’s and consulting firms.
2. The **Policy Studio** will be the focal opportunity for experiential learning that focuses on integrating a wide array of quantitative and technical tools on policy problems. The studio will be problem-focused and interactive. The first quarter will focus on dividing the cohort into small groups and defining a group project. The group project will have a lead mentor and several supporting mentors. Each project will be required to analyze and report on the scientific and technical aspect of a large scale environmental problem. Environmental challenges will be described and analyzed on a local, national and global scale; however the group will select one particular scale for in depth analysis. The studio will begin by analyzing the potential for **policy-relevant science**; this being defined by the policies (a common set of practices guided by anything from NGO operating procedures to law) that dictate societal behavior, and identifies the individuals or groups that drive the policy process. The group will evaluate the state of scientific knowledge and identify inflection points for change (i.e., new knowledge that could change policy outcomes, changes in societal perception needed to change policies). Groups will then assess barriers to change in order to develop a synthetic assessment of potential for, and barriers to, better policy outcomes for society. Each Policy Studio will include a suite of required elements, including an assessment of economics, problem administration, law, as well as a scientific and technical assessment.

3. Working for agencies, politicians, NGOs or consulting firms requires an understanding of environmental law. Working within this environment also requires business administration and project management. We propose a course called **Environmental Law, Administration and Management**. This fall 2-course combination will be modularized courses with different instructors to deliver specialized topics. It will be offered in the fall as foundational to group work in policy studios.

4. The EPM program specializes in **quantitative analysis of environmental problems**. The quantitative analysis requirement will allow students to choose amongst a wide array of existing upper division quantitative courses already in existence at UCD.

5. The **elective** class can take advantage of any of a number of upper division undergraduate or graduate classes and provide the opportunity for students to garner strength in an area of particular interest.

6. The **Professional Development Seminar** will bring a diverse array of leaders from agencies, the legislative branch, environmental NGOs and consulting firms to campus to discuss career opportunities and leading challenges within their professions. Each quarter will focus on a thematic topic (e.g., climate change, freshwater supply, fire management).

7. The **Practicum** will be a capstone experience for students to integrate and apply their coursework to a problem in a practical applied professional setting, and will provide students with experience in the professional field. Practicum projects will vary, but all
will result in a written report and an exit interview with a committee of faculty that will represent the comprehensive exam.

Most practicum projects are expected to be individual projects; however, group projects with identifiable individual contributions are also possible. Projects will be developed in consultation with one or more faculty members as supervisors of each practicum project and an agency, NGO or consulting firm. The intent of the practicum is to contract with and fulfill a policy research/analysis need of a partnering agency, NGO or consulting firm. Program staff will work with students to develop practicum experiences, including contractual obligations with the partnering organization. It is anticipated that partnering organizations will compensate students for their work through a small grant to the University. Alternatively (e.g., students who are currently working for an agency, NGO or consulting firm), a student may propose a practicum project with a faculty mentor but without a direct agency, NGO or company lead. This practicum remains an experiential exercise in professional development, and not a research project. In each case, students are expected to propose a practicum along with a professional development plan that states how the practicum is envisioned to further their individual career objectives.

The focal administrative support units of this program (JMIE and PIEEE) currently each administers such a practicum program for graduate students. The JMIE program partners specifically with The Nature Conservancy; PIEEE currently runs such a program with state agencies. The scope and content of practicum projects will be similar to those of practice-oriented degree programs elsewhere, such as that of the project required by the Public Policy Master’s program at UC Berkeley’s Goldman School.

The academic year preparatory period for the practicum allows time to develop a contract with a coordinating partner (agency, NGO, consulting firm) that includes deliverables, fees for services rendered. During this period, the student will find an appropriate faculty sponsor and write a professional development plan.

4. Special Requirements. Both the Practicum and Policy Studios will conclude with presentations to the program to which the public and stakeholders may be invited. These presentations will be evaluated by a program committee who will prepare a summary for the student as fulfillment of their comprehensive examination.

5. Committees.
   a) Admission Committee. Following the application deadline, the admission committee will review applicants to assemble a cohort of students for the yearly program. The admission committee will consist of three graduate group faculty members and two external advisors (from agencies, NGOs, consulting firms). The external advisors’ input will be advisory, with the graduate faculty having the final say in admissions. However, these advisors will be critical in helping steer the program based on industry demand of
graduates and profiles of students likely to succeed along their described professional trajectories.

b) Advising Committee. Each student will assemble a committee of three faculty members to advise individual students on two specific issues. First, the committee will advise students on potentially relevant quantitative methods classes as an elective. Second, the committee will advise students in their practicum project.

c) Comprehensive Exam Committee. The program will establish a comprehensive exam committee for each year, composed of three members appointed by the Chair. This committee will be responsible for evaluating students relative to their Policy Studio and Practicum work. Students do not have a major professor, and hence there is no concern whether or not such a person would be on this committee.

6. Advising Structure and Mentoring. Lacking major professors, per se, students will be advised by (a) the program staff (graduate group chair and program academic coordinator); and (b) the Comprehensive Exam Committee (CEC). The faculty program coordinator and the program academic coordinator will be principally responsible for interviewing and evaluating incoming students with respect to their professional aspirations. The program staff will discuss with the student their quantitative tools needs to recommend an elective course in quantitative methods. The CEC will be principally responsible for evaluating students on studio and practicum work. As such this committee will be responsible to sign off on project proposals for all practicum and studio projects. Finally, the program staff will be responsible for career counseling throughout the year long program.

7. Advancement to Candidacy. All students will advance to candidacy once they have approved Studio and Practicum projects. This is anticipated to be by the end of winter quarter and after the successful completion of 25 units of study.

8. Comprehensive Exam. The comprehensive exam will be conducted as a consequence of fulfilling all program requirements and being ready to embark on their practicum experience. It is expected that this exam will be conducted at the conclusion of spring quarter. The exam will combine an evaluation of three written reports: (1) the student’s professional development plan; (2) the student’s practicum proposal; and (3) the student’s policy studio projects. If any component of these materials is less than satisfactory, the student will be asked to also have an oral exam that can include elements of basic understanding of the principles of the curricular material, or an evaluation of the student’s written products (e.g., the professional development plan). Specifically, the committee will determine if they agree that the student has learned the necessary tools with which to succeed in their professional development plan. Students who do not pass this exam can be (a) asked to engage in individual study to fulfill deficiencies in knowledge or (b) retake specific classes. Students would then be required to retake the exam. Failure would also trigger an explanation from program course
instructors regarding student performance in the curricular requirements of the program. A second failure would result in a recommendation to the Dean of Graduate Studies that the student be disqualified from the program.

9. Normative time from matriculation to degree. Normal time from matriculation to degree is anticipated to be 12 months, although students may elect to spread the program across 2 years. Normative time to advancement to candidacy is 2 quarters.

10. Typical time line.

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11. Sources of funding. Students are expected to pay for their own tuition, fees and support. Block grant monies will be targeted toward exceptional students, particularly international students to help defray costs of non-resident supplemental tuition (NRST).

12. PELP, in Absentia, and Filing Fee Status. We anticipate no unusual status for PELP, in absentia or filing fee status. Although these will undoubtedly occur, with a brief 12 month, cohort-centered program, where there is strong program involvement in professional placement in studio projects and practicum experiences, we anticipate low rates of these tools for students who are not following the expected trajectories. We anticipate extenuating features of these tools for helping students through challenging situations, beyond those already described by Graduate Studies, to apply to this program.
Nov 17, 2014

Dear Dr. Schwartz;

I am writing in response to your request to evaluate whether we see a potential conflict or potential value in the proposed, 1 year, coursework only Environmental Policy MS. I have reviewed the proposed program in relation to the Civil and Environmental Engineering graduate group, of which I am Graduate Advisor. The proposed program: (a) has minimal overlap with our graduate program; (b) does not compete with us for the same pool of students; and (c) potentially could add value to students’ experience in both our graduate program as well as other graduate programs with an environmental focus. I fully support the creation of an Environmental Policy PM degree program.

Sincerely,

Frank Loge, Ph.D., P.E.
Professor, Vice-Chair, Graduate Advisor
Department of Civil and Environmental Engineering
University of California Davis
One Shields Avenue
Davis, CA 95616
(530) 754-2297 (Voice)
fjloge@ucdavis.edu
November 21, 2014

Dear Professor Schwartz;

On behalf of the Graduate Group in Ecology (GGE or GECL), I am writing in support of the proposed 1 year, coursework only Environmental Policy MS. The GGE’s Executive Committee reviewed the proposed program over the past two weeks and was enthusiastic about its initiation.

Because it is a coursework-only degree program, the committee expected that it would not compete with our program in any meaningful way, provided that the core course can expand its enrollment to accommodate the additional professional students. The course is currently undersubscribed and the MS program will build gradually, so we do not anticipate any ‘growing pains’ in this regard. In fact this and other courses related to the GGE are likely to be enhanced by broader participation.

We understand that the MS program could become available to a fraction of our Ph.D. students who would like pursue its applied training program in environmental policy and to take advantage of the networking opportunities it offers. Students who add this MS in environmental policy to their CVs may be more competitive in the job market. We hope that the funding model would allow the enrollment of occasional research graduate students.

Not only did our committee vote in favor of the program, but I and several others thought that producing graduates well-trained in environmental policy would benefit U.C. Davis’s impact and image. We look forward to the approval and offering of this program.

Sincerely,

Sharon P. Lawler
Chair, Graduate Group in Ecology
Professor of Entomology and Nematology
November 13, 2014

Dear Dr. Schwartz,

I am writing in response to your request to evaluate whether I see a potential conflict or potential value in the proposed, 1-year, coursework only Environmental Policy MS. I have thoroughly read the proposal to create this program and I have thought about it in relation to the Hydrologic Sciences graduate group (HSGG), of which I am chair. I have not spoken to any other group members about it and this is the first I have heard of this proposal.

Hydrologic Sciences is a broad-based program of advanced study in which students have flexibility to learn the fundamentals of hydrology as a specialized scientific discipline or follow a problem-oriented, interdisciplinary approach to education taking advantage of the breadth of Earth, environmental, agricultural, social science, and/or engineering resources on campus at UC Davis. As part of its core curriculum, Hydrologic Sciences requires its graduate students to have at least one course in water policy and management. Some of our students choose to do their MS or PhD focusing more in depth on water policy and management, almost always seeking a “Plan I” option in which this is done in conjunction with a research thesis or dissertation. Very few students choose the “Plan II” option of an MS degree without a research thesis. As a result, I find that the proposed program has minimal overlap with our graduate program. Looking at the prerequisites and goals of our HSGG degrees and the proposed new ones, I do not see this proposed Plan II program as competing with us for the same pool of students or serving the same degree objectives.

In addition, you asked to render an opinion as to whether this program would be viewed as value added, from the perspective of the Hydrologic Sciences graduate group. Because we require our students to take a policy/management class, it could be extremely helpful to us if this program sustains existing courses at risk of being terminated and/or brings into being new courses that our students could take to fulfill their requirements. I think having our technical students in some of these proposed classes as well as the proposed new students take some of our existing technical and management classes would yield a mutual benefit. Hopefully the proposed elective courses in this new program would be open to students outside the program and without too many prerequisite barriers.

Independent of the graduate group that I chair, I personally feel that the proposed Environmental Policy MS program would be a welcome addition to the graduate programs in the environmental arena. I am very supportive of masters-only Plan II professional degrees as a meaningful contribution UC Davis can make to society.

As a consequence, as chair of the Hydrologic Sciences graduate group, I fully support the creating of an Environmental Policy PM degree program, as described.
Sincerely,

[Signature]

Dr. Gregory Pasternack
Chair, Hydrologic Sciences Graduate Group
Professor, Department of Land, Air, and Water Resources
November 21, 2014

Dear Dr. Schwartz;

I am writing in response to your request to evaluate whether we see a potential conflict or potential value in the proposed, 1 year, coursework only Environmental Policy MS. I have reviewed the proposed program in relation to the Soils and Biogeochemistry graduate group, of which I am chair.

Seeing as this is a coursework only degree program, I find that the proposed program has minimal overlap with our graduate program in Soil Science and Biogeochemistry. Hence, we do not see this program as competing with us for the same pool of students.

Given that many graduates in natural resource management end up with jobs that do not actively engage in research, this new graduate opportunity may be a better fit for some applicants. The outcome may be more successful job placement for UCD students. I also feel that this program could benefit the Soils and Biogeochemistry Graduate Group because it has the potential to expose more graduate students to our courses and may attract them to our program for a research degree or simply expose more graduates to soil science. Ultimately, having more students in the policy arena will focus more attention to our programs and that is a good thing.

Independent of the graduate group that I chair, I personally feel that the proposed Environmental Policy MS program would be a welcome addition to the graduate programs in the environmental arena.

As chair of the Soils and Biogeochemistry graduate group, I fully support the idea of creating an Environmental Policy PM degree program, as described.

Sincerely,

Anthony Toby O’Geen
Chair, Soils and Biogeochemistry Graduate Group
University of California, Davis
November 20, 2014

Mark Schwartz, Director
John Muir Institute of the Environment

Dear Dr. Schwartz;

I am writing in response to your request to evaluate whether we see a potential conflict or potential value in the proposed, 1 year, coursework only Environmental Policy MS. I have reviewed the proposed program in relation to the Geography Graduate Group, of which I am chair.

Seeing as this is a coursework only degree program, I find that the proposed program has minimal overlap with our graduate program in geography. Hence, we do not see this program as competing with us for the same pool of students.

Perhaps more importantly, I see that there may be many valuable synergies between the proposed Environmental Policy MS program and the existing Geography MA and PhD program. First, there is a substantial portion of students who come to the geography program who are interested in non-academic careers. They may be very interested in taking courses in the Environmental Policy MS program, or even pursue augmenting their geography degree with an MS in environmental policy. Second, I can imagine that there are students who would start with an MS in Environmental Policy, and in the process would become interested in pursuing a Ph.D. in Geography, so this could become an important recruiting channel for our program. I would note in particular that nearly half of the faculty identified as being in the proposed Environmental Policy MS graduate group are already part of the Geography Graduate Group, thus facilitating this possible recruitment channel.

Obviously, I’m not sure how often students would move between Geography and Environmental Policy graduate programs, but it is plausibly a direct benefit to some fraction of the students from both groups. Independent of the graduate group that I chair, I personally feel that the proposed Environmental Policy MS program would be a welcome addition to the graduate programs in the environmental arena.

As a consequence, as chair of the Geography Graduate Group, I fully support the creating of an Environmental Policy PM degree program, as described.

Sincerely,

Chris Benner, Ph.D.
Chair, Geography Graduate Group
ccbenner@ucdavis.edu
(530) 754-8799
Dear Dr. Schwartz;

I am writing in response to your request to evaluate whether we see a potential conflict or potential value in the proposed, 1 year, coursework only Environmental Policy MS. I have reviewed the proposed program in relation to the Atmospheric Science graduate group, of which I am chair.

Seeing as this is a coursework only degree program, I find that the proposed program has minimal overlap with our graduate program in Atmospheric Science. Hence, we do not see this program as competing with us for the same pool of students.

In addition, you asked to render an opinion as to whether this program would be viewed as value added, from the perspective of our graduate program. We understand that a fraction of our students who come in to do a research degree, exit thinking that they would rather pursue non-academic, non-research careers. As such, augmenting their degree in our program with a one year coursework only MS in environmental policy may make this sort of student much more competitive in the job market. We are not sure how often this might happen, but it is plausibly a direct benefit to some fraction of the students from our group.

Independent of the graduate group that I chair, I personally feel that the proposed Environmental Policy MS program would be a welcome addition to the graduate programs in the environmental arena.

As a consequence, as chair of the Atmospheric Science graduate group, I fully support the creating of an Environmental Policy PM degree program, as described.

Sincerely,

Shu-Hua Chen
Chair, Graduate Group in Atmospheric Science
Tel: 530-752-1822
E-mail: shachen@ucdavis.edu

November 12, 2014
Appendix I

Memorandum of Understanding
between
College of Agricultural and Environmental Sciences (CA&ES) Dean’s Office
and
John Muir Institute for the Environment (JMIE) on Behalf of the New Environmental Policy
Management (EPM) Graduate Group

Purpose of Agreement

The purpose of this Memorandum of Understanding (MOU) is to establish terms and conditions associated with support of the new Environmental Policy Management graduate group and its masters of science degree. It is understood that this will be a new graduate group offering a one-year, coursework only masters of science degree that would have its initial enrollment in fall of 2016 with an estimated build-out total enrollment of 40 students. Based on the UC Davis budget model for allocation of Graduate Tuition Revenue\(^1\) from incremental growth, 33\% of in-state tuition revenue generated by EPM enrolled masters students will be allocated from the Provost to the office of the lead dean, in this case the CA&ES dean. It is also understood that the EPM is being launched with two Hiring Incentive Program new faculty positions that will be recruited in CA&ES departments.

Terms of Agreement

The CA&ES Dean’s Office agrees to:

1. Allocate graduate group administrative support to the JMIE which will serve as administrative home for the EPM graduate group. This support will be based on the formula utilized by Graduate Studies Division. For 2014-15, the formula allocated $512 per student enrollment in a graduate group, using a three-year average enrollment. Fifty percent of the total calculation is provided by Graduate Studies Division and 50\% is provided by the lead dean.

2. Allocate one-time initial funds of $50,000 to the EPM graduate group to launch the program and initiate recruitment (to be used for salary and benefits of a part-time Academic Coordinator 1 and recruitment materials/expenses for some period prior to initial student enrollment).

3. For the first five years students are enrolled in the EPM graduate group masters degree, allocate to the EPM graduate group 85\% of the in-state tuition revenue that the CA&ES lead dean receives from the Provost resulting from EPM enrolled students.

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\(^1\) March 12, 2014 letter from Ralph Hexter and Jeffrey Gibeling to Council of Deans regarding Graduate Tuition in the Budget Model for 2014-15
The JMIE, on behalf of the new EPM Graduate Group, agrees to:

1. Obtain MOU commitments from departments, faculty and lecturers in the EPM graduate group for teaching the core courses required for the new EPM masters degree.

2. Develop a sustainable approach to funding student recruitment, program marketing, course instruction, student advising, administration, and other expenses associated with the new EPM graduate group.

Duration of Agreement

1. This MOU will become effective July 1, 2015 and remain in effect through June 30th of the fifth year of enrollment in the new graduate group on the condition that the EPM graduate program is approved by the UC Coordinating Committee on Graduate Affairs (CCGA) to begin.

2. It is anticipated that after five years, the following will have occurred:
   a. As a result of future retirements, it is likely that faculty replacement issues may arise. For that purpose, it is agreed that the host department develops teaching plans to assist the CA&ES and other UC Davis schools/colleges/divisions with those EPM teaching needs as they arise.
   b. The EPM graduate group will have secured a buffer pool of resources against expenses to cover emergency teaching needs.
   c. The EPM graduate group will engage in fund-raising through partner organizations and have developed an income stream for practicum and studio project outputs.
   d. The EPM graduate group may desire to negotiate a continued commitment of funds from the lead dean. However, as funding models, programmatic needs, and college constraints change, this MOU makes no assumptions or commitments about continued allocation of tuition revenue from the CA&ES lead dean to the EPM graduate group.

In Agreement:

Mark Schwartz, Director  Date  
JMIE  

Helene R. Dillard, Dean  Date  
CA&ES  

Ronald Tjeerdema, Associate Dean  Date  
CA&ES  

c: Executive Associate Dean Delany  
Executive Assistant Dean Kaiser  

Page 2 of 2
Memorandum of Understanding
Instruction of Core Course

10 October 2014
Environmental Science and Policy

and

Environmental Policy and Management Graduate Group

As Chair of the Department of Environmental Science & Policy (ESP), and as interim chair of the Environmental Policy and Management Graduate Group (EPM) we hereby agree to collaborate to deliver core courses for the EPM graduate degree program.

AS a consequence of one HIP proposal position in Climate Change Policy, being located within the Department of Environmental Science and Policy, we hereby commit to delivering a minimum of two courses per year within the Environmental Policy Graduate Group.

Specifically, core courses that ESP could potentially fill include:

1. **EPM 200A,B, or C Analysis of Environmental Policy**. This is the core course for the program. The initial plan is for Dr. G. Arnold and Dr. M. Springborn to cross list ECL212A,B, respectively with EPM200A,B. In addition, other faculty (e.g., M. Schwartz, J. Largier) may participate in the third quarter of EPM 200.
2. **EPM 201. Environmental Law**. New hire, or contract teaching for financial compensation to department.
3. **EPM 202. Administration and Management**. (Dr. M. Lubell)
4. **EPM 203. Policy Studio**. (Largier, Lin, Handy, Quinn, Sanchirico, Schwartz, Shilling)

Recognizing that there are at least six departments (ESP, WFCB, ANR, CIE, LAWR, LDA) as core stakeholders of success for this program, we welcome a share of the responsibility for this program teaching and feel that ESP will be able to provide core instruction in the short term through course cross-listing. ESP is also willing to dedicate faculty teaching time to stand-alone core EPM classes as the program develops under the understanding that the arrangement must be agreeable to the senate faculty member. Further, EPM may provide financial compensation to the department to fill teaching gaps left by additional faculty teaching.

This MOU and its effectiveness will be evaluated during program reviews, and may be renewed as needed after evaluation. This agreement shall begin when the EPM program formally launches (proposed fall 2016) and remain in force until otherwise agreed with the expectation that it will be continued.

Susan Handy
Chair
Environmental Science & Policy

Interim Chair
Environmental Policy and Management
Memorandum of Understanding
Instruction of Core Course

10 October 2014
Wildlife, Fish and Conservation Biology

and

Environmental Policy and Management Graduate Group

As Chair of the Department of Wildlife, Fish and Conservation Biology (WFCB), and as interim chair of the Environmental Policy and Management Graduate Group (EPM) we hereby agree to collaborate to deliver core courses for the EPM graduate degree program.

As a consequence of one HIP proposal position in Climate Change Ecology being located within WFCB, we hereby commit to delivering a minimum of two courses per year within the Environmental Policy Graduate Group.

Specifically, core courses that WFCB could potentially fill include:
(1) EPM 200A,B, or C. Analysis of Environmental Policy. Climate Change Ecology Hire
(2) EPM 203. Policy Studio. (Climate Change Ecology Hire, or other faculty as interested)

Recognizing that there are at least six departments (ESP, WFCB, ANR, CIE, LAWR, LDA) as core stakeholders of success for this program, we welcome a share of the responsibility for this program teaching and feel that the HIP position within WFCB will be able to provide core instruction in the program. Teaching delivered to the EPM program above and beyond the 2 course minimum may be compensated financially by resources that come into the program to pay for teaching.

This MOU and its effectiveness will be evaluated during program reviews, and may be renewed as needed after evaluation. This agreement shall begin when the EPM program formally launches (proposed fall 2016) and remain in force until otherwise agreed with the expectation that it will be continued.

John Eadie
Chair
Wildlife Fisheries and Conservation Biology

Mark Schwartz
Interim Chair
Environmental Policy and Management
PROFESSOR MARK SCHWARTZ  
Environmental Science and Policy  

SUBJECT:  Financial Support for the Proposed Graduate Group in Environmental Policy and Management  

Dear Mark,  

The proposed Graduate Group in Environmental Policy and Management (EPM) has my full and enthusiastic support. I view this as a very timely new program that fits extremely well with the academic and research strengths of UC Davis. As you know, it is the outcome of careful and thoughtful planning by the faculty and is clearly supported by the campus through the recent allocation of 2 faculty positions under the Provost’s Hiring Investment Program. In addition, the proposed EPM program will provide a vitally important link between our world-leading research and graduate education programs in the area of environmental science and the field of environmental policy development.  

I am writing to provide a commitment of graduate student financial support for this proposed program. Specifically, I will allocate $20,000, $40,000 and $60,000 in years 1, 2 and 3 as start-up transition student support funding for the group. This funding will complement funding committed by under the graduate tuition budget model through the College of Agricultural and Environmental Sciences. Beginning in year 4, Graduate Studies will provide an on-going Graduate Program Fellowship Allocation (formerly known as the Block Grant). Based on current rates, this would amount to at least $60,000 per year at the target program size of 30 students. All of the graduate student support funds provided to the group will be new and will not negatively impact other graduate programs. Consistent with current practice, Graduate Studies will provide 50% of the administrative support for the group (to be matched by the lead dean(s)), which will be a minimum $5,000 per year based on the projected minimum enrollment of 20 students or $10,000 per year if the program enrolls 40 students. Graduate Studies will also provide a customary stipend of $2-3,000 for the chair based on experience and group size.  

We already know that there are many opportunities to raise additional private fellowship support in the area of environmental sustainability and stewardship. My development officer and I have had numerous conversations with potential donors and firmly believe that approval of the Graduate Group in Environmental Policy and Management will catalyze several of them to make gifts to UC Davis to support the new group.  

Sincerely,  

Jeffery C. Gibeling  
Vice Provost – Graduate Education and Dean – Graduate Studies  

c:  Dean Dillard  
    Associate Dean Hopmans  
    Assistant Dean Kaiser  
    Chief Administrative Officer Martin-Ocampo  
    Director Albrecht  
    Graduate Policy Analyst Mendoza
MARK SCHWARTZ, DIRECTOR  
John Muir Institute of the Environment and Faculty Lead  

RE: Support for Environmental Policy and Management (EPM) MS degree proposal  

It is with great enthusiasm that my office supports the proposed new EPM MS degree. I applaud your efforts to re-invigorate the earlier proposal and your recent successful efforts in securing two new HIP faculty positions in support of the program. For reasons outlined below, I am excited to serve as the lead academic college for the proposed EPM degree.  

We agree with you that our campus is strategically well placed for such a terminal one-year MS degree, with Davis in close proximity to the state capital, thus providing excellent opportunities for EPM students to engage with the state legislature and state agencies within the realm of environmental policy. Also, comparing with other academic institutions that offer a similar degree, our campus can serve as a big attractor because of the high quality and rigorous environmental degree programs in place already, including the interdisciplinary training that adds to the strength of our campus. A one-year MS program as proposed can be attractive to both out of state and international students, as well as for professionals already working in the environmental field.  

As the lead dean for the proposed program, I will commit the resources outlined in the MOU between CA&ES and JMIE, as signed on October 16, 2014. I also encourage you to continue your efforts in securing additional FTE in support of the program through the HIP proposal process.  

Again, I am fully supportive of the EPM initiative, and am looking forward to working with you in developing the one-year terminal MS program in Environmental Policy and Management as a blueprint for creating a high quality and income-generating graduate program for our campus.  

Best Wishes  

[Signature]  

Helene Dillard  
Dean  

RT/lf  
cc: M. Delany  
T. Kaiser  
R. Tjeerdema
GWEN ARNOLD  
(September 2014)

CONTACT INFORMATION

Department of Environmental Science and Policy  
gbarnold@ucdavis.edu
University of California, Davis  
202-294-1303
1023 Wickson Hall, 1 Shields Avenue  
http://www.gwenarnold.com
Davis, CA 95616

ACADEMIC APPOINTMENTS

University of California, Davis, CA  
Department of Environmental Science and Policy
Assistant Professor, July 2013–present
Faculty affiliations: Graduate Group in Ecology, Graduate Group in Geography, and
Graduate Group in Transportation Technology and Policy

University of Cincinnati, Cincinnati, OH  
Department of Political Science
Assistant Professor, August 2012–June 2013

Indiana University, Bloomington, IN  
Vincent and Elinor Ostrom Workshop in Political Theory and Policy Analysis
Affiliated Faculty, November 2012–present

EDUCATION

Indiana University, Bloomington, IN  
Ph.D. Public Policy, August 2012
Concentrations: Environmental Policy and Political Theory and Methodology

University of Michigan, Ann Arbor, MI  
B.A. Political Science (Minor: Global Change), May 2003

PEER-REVIEWED PUBLICATIONS

Published

Arnold, Gwen. 2014. Policy learning and science policy innovation implementation by street-level

Arnold, Gwen, and Robert Holahan. 2014. The federalism of fracking: How the locus of


Under Review

*Working Papers*

Holahan, Robert, and Gwen Arnold. Resource characteristics and policy fit: Comparing conventional and unconventional oil and gas reservoirs.

Nguyen, Le Anh, and Gwen Arnold. How do networks affect entrepreneur-driven policy diffusion? Examining municipal adoption of fracking policies in New York’s Southern Tier

Arnold, Gwen. Upending environmental federalism: The case of Ohio wetland regulation.

**FUNDING**

*External*
U.S. EPA Science to Achieve Results (STAR) Fellowship, 2010–2012 ($111,000)

*Internal: University of California, Davis*
Hellman Fellowship, 2014–2015 ($40,135)

*Internal: Indiana University*
University, school, or graduate student travel grants totaling $2800, 2007–2012
Chancellor’s Fellowship, 2006–2012 (tuition and annual stipend of $25,000 each year for four years)

**OTHER PUBLICATIONS**


*I worked as a research associate and editor at the nonpartisan, nonprofit Environmental Law Institute from 2003 through 2006.

PRESENTATIONS


Tim Caro

**Awards**
- 2014 Fellow of the Linnean Society of London
- 2012 Cadre of top 30 reviewers for Proceedings of the Royal Society London B.
- 2010 Fellow of the Wildlife Conservation Society
- 2009 Distinguished Scholarly Public Service Award, UC Davis

**PhD students**
- Dr Tuyeni Mwampamba (co-supervised with M. Schwartz, UC Davis 2009). Assistant Professor, Mexico City
- Peter Mgawe (co-supervised with M. Borgerhoff Mulder, U Dar es Salaam, Tanzania, 2010 Masters) environmental consultant, Tanzania
- Andimile Martin (current, co-supervised with M. Borgerhoff Mulder, UC Davis)
- Jason Riggio (current)
- Alex Laboro (current, co-supervised with C. Nahongo and C. Foley, University of DSM)

**BOOKS**

**SELECTED RECENT JOURNAL ARTICLES**


<table>
<thead>
<tr>
<th>Year</th>
<th>Author(s)</th>
<th>Title</th>
<th>Journal</th>
<th>Volume</th>
<th>Pages</th>
</tr>
</thead>
</table>
JOHN M. EADIE

Professional Preparation:
University of Western Ontario Zoology BS 1975-1978
Queen’s University Biology MS 1979-1982
University of British Columbia Zoology PhD 1984-1989

Appointments:
2012-present Chair, Department of Wildlife, Fish & Conservation Biology, University of California, Davis
2002-present Professor, Department of Wildlife, Fish & Conservation Biology, University of California, Davis
1997-2002 Associate Professor (with tenure), Department of Wildlife, Fish & Conservation Biology, University of California, Davis
1995-1997 Assistant Professor, Department of Wildlife, Fish & Conservation Biology, University of California, Davis
1993–1995 Associate Professor (with tenure). Division of Life Sciences, Scarborough Campus, University of Toronto
1988–1993 Assistant Professor. Division of Life Sciences, Scarborough Campus, University of Toronto

Honors and Awards (selected):
1995-present Dennis G. Raveling Endowed Professorship in Waterfowl Biology
2012 National Blue-Winged Teal Award, North American Waterfowl Management Plan Committee
2012 Wetland Conservation Achievement Award – Science/Research, Duck Unlimited Inc.
2012 Nominated for the ASUCD Excellence in Education Award
2011 Central Valley Joint Venture. Excellence in Scientific Research Award

Research Grants (selected from last 5 years)
2014-17 National Science Foundation (PI; Bruce Lyon; co-PI) $497,244
2014-16 California State Duck Stamp Project (Dan Skalos; Melanie Weaver co-PIs) $33,150
2014-16 US Fish & Wildlife Service Multi-LCC (one of 16 co-PIs) $130,000
2011–14 Delta Waterfowl Foundation $90,000
2010–13 US Fish & Wildlife Service (CVJV) $71,350
2011–12 Florida Fish & Fame Commission (Andy Engilis, co–PI) $25,000
2009–12 California Department of Fish & Game $151,775
2009–12 California Department of Fish & Game $67,675

Publications (selected from last 5 years)
Eadie 2


98 Publications in Peer-reviewed Journals over career (1989-2014; 25 years)

Professional Activities (recent)

- Professional Service (selected):
  - Member – Central Valley Habitat Joint Venture – Waterfowl Working Group, 2009-present
  - Invited member of the Writing Team for the 2012 Revision of the North American Waterfowl Management Plan (USFWS)

Chair of the scientific program committee for the 3rd North American Duck Symposium; member of the organizing committee for this conference (California 2004); currently serving on the scientific program committee for the 2013 meeting in Memphis TN

Invited Member, National Science Support Team, North American Waterfowl Management Plan (USFWS), 2011-present

Member, Pintail Action Group, North American Waterfowl Management Plan, 2005-present

Chair, Avian Science Graduate Group, 2007-2013

Elected Member at large, Executive Committee – Animal Behavior Society (2007-2009)

Panel member, NSF Behavioral systems cluster (2007)

**Editorial and Advisory Boards:**

- Science Advisory Committee, PRBO Conservation Science, 2005-present
- Technical Advisory Committee, California Wetlands Status and Trends, Southern California Coastal Water Research Project, 2011-2012
- Board of Directors, North American Duck Symposium & Workshop, 2009-2012
- Chair, Science Advisory Committee, PRBO Conservation Science, 2011-2012
- Member, Conservation Committee, Animal Behavior Society, 2007-2012
- Elected member, Board of Directors, PRBO Conservation Science, 2006-2012

**Outreach:**

- I hold the Dennis G. Raveling Endowed Professorship in Waterfowl Biology. The goal is to create a program at UC Davis to enhance wetland conservation in the agricultural landscape of California. We have grown the total value of the endowment to over $2 million.
- Invited member of the writing team for the North American Waterfowl Management Plan in 2011-12, the guiding document for all waterfowl and wetland conservation in the U.S., Canada and Mexico.

**Thesis Advisor and Postgraduate-Scholar Sponsor (recent)**

**Postdoctoral Fellows:** Sara Kross (Smith Fellow), Garth Herring (U.S. Geological Survey, Corvallis, OR), Mary-Brooke McEachern (University of California, Davis), Charlotte Roy-Nielson (Southern Illinois University, Carbondale)

**PhD:** Josh T. Ackerman (U.S. Geological Survey, Dixon Field Station), Elena C. Berg (Harvard University), Kristen Dybala (University of California, Davis), Ada C. Fowler, Sarah McCullough, Nicole S. Odell (Presentation High School, San Jose, CA), Elizabeth Porzig (University of California, Davis), Kevin Ringelman (University of California, Davis), Annie Schmidt (University of California, Davis), Susan Wainwright-de la Cruz (U.S. Geological Survey), Bobby Walsh (University of California, Davis)

**M.S.:** Michael Brown, Brianne Brusee (U.S. Geological Survey, Western Ecological Research Center), Edward Burns (USDA, Natural Resources Conservation Service), Emilie Graves (University of California, Davis), Brian Olson (University of California, Davis), Dan Skalos (PRBO Conservation Science), Natalie Washburn (San Francisco Bay Bird Observatory).

**44 Graduate students and 7 postdoctoral scholars supported over my career (1989-2014; 25 years)**
SUSAN L. HANDY
Department of Environmental Science and Policy
2132 Wickson Hall
University of California at Davis
Davis, CA 95616-8576
slhandy@ucdavis.edu

PRESENT POSITION:
Professor, Department of Environmental Science and Policy, University of California, Davis.
Chair, 2011 –
Director, National Center for Sustainable Transportation, 2013 –
Director, Sustainable Transportation Center, 2006 – 2012
Associate Professor, 2002 – 2006

EDUCATION:
Doctor of Philosophy, City and Regional Planning, University of California at Berkeley, 1992.
Bachelor of Science and Engineering, Engineering and Management Systems Program, Civil Engineering, Princeton University, 1984.

PRIOR POSITIONS:
Associate Professor, Community and Regional Planning Program, School of Architecture, University of Texas at Austin, 1999 -2002.  Assistant Professor 1993 - 1999.
Assistant Researcher, Institute of Transportation Studies, University of California Davis, 1992-1993.
Assistant Planner, Metropolitan Transportation Commission, Oakland, CA, 1987-1990.
Transportation Analyst, Center for Urban Analysis, Santa Clara County, San Jose, CA, 1987.

CURRENT PROFESSIONAL APPOINTMENTS:
Associate Editor for Journal of Transportation and Health, since 2013
Member, Executive Board, World Society on Transportation & Land Use Research, since 2011.

RECENT RESEARCH GRANTS:

SELECTED RECENT ARTICLES:
Piatkowski, D.P., K.J. Krizek and S. Handy. 2014. Accounting of the short term substitution effects of walking and cycling in sustainable transportation. *Travel Behaviour and Society*. Forthcoming.

**SELECTED RECENT ARTICLES: continued**


Thomas Harter, Ph.D.
Robert M. Hagan Endowed Chair in Water Management and Policy

Department of Land, Air, and Water Resources
University of California, Davis
One Shields Ave.
Davis, CA 95616
ph/530-400-1784
thharter@ucdavis.edu
http://groundwater.ucdavis.edu

Education
Universität Freiburg, Germany  Physical Geography/Hydrology  Vordiplom, 1985
Universität Freiburg, Germany  Hydrology  Diplom (M.S.), 1989
University of Arizona  Hydrology  Ph.D., 1994
University of Arizona  Postdoctoral Fellow, Hydrology  1994-1995

Appointments
Since 2007, Robert M. Hagan Endowed Chair, Water Management and Policy
Since 2005, Specialist in Cooperative Extension
1999-2005, Associate Specialist in Cooperative Extension
1995-1999, Assistant Specialist in Cooperative Extension

Research and Professional Experience
Professional Memberships
1995-  Member, American Geophysical Union
1998-  Member, Groundwater Resources Association
2000-2010  Associate Editor, Water Resources Research
2000-  Associate Editor, Vadose Zone Journal
2008-  Board of Directors, Groundwater Resources Association
2014-  Board of Directors, Water Education Foundation
2014-  Associate Editor, Journal of Environmental Quality

Honors
1985  Fulbright Fellow, University of Arizona
1991  Harshbarger Fellow, University of Arizona
2007  Kevin J. Neese Award, Groundwater Resources Association
2008  Western Extension Directors’ Award of Excellence
Since 2007  Robert M. Hagan Endowed Chair for Water Management and Policy

Selected Synergistic Activities
2012 Lead author and senior project director, SBX2 1 Nitrate in Drinking Water Study for 2012 Report to the Legislature. Major scientific-technical study and policy analysis for the California legislature, including eight peer-reviewed technical reports (1,300+ pages), a 78-page main report (co-authored by T. Harter and Dr. Jay Lund), an executive summary, and a policy brief. Directed 9 faculty and 16 students and postdocs; organized 3 full-day public workshops, 3
half-day public workshops, 4 full-day state-federal environmental agencies workshops; a year-long seminar discussion series with 16 events featuring invited state and federal agency and stakeholder leaders and representatives; a series of media planning events with public relations planners from 8 state agencies and university institutes; over 50 organized event presentations; development of a website with peak page view rates exceeding 3,000 (over 25,000 page views in the first five months), [http://groundwaterrnitrates.ucdavis.edu](http://groundwaterrnitrates.ucdavis.edu); a media campaign with interviews that yielded nearly 400 national newspaper articles, online newsgroups, radio and TV news and feature program broadcasts; nearly 30 invited presentations and briefings to state, national, and international audiences, stakeholder groups, and state leadership (legislative briefing to state assembly members and senators, briefings with the governor's office, individual and executive briefings with heads of seven state agencies - CalEPA, CDPH, CDFA, DPR, DWR, SWRCB, CalNR); and at least four state legislative initiatives during the 2012 legislative session.


2008 Western Extension Directors’ Award of Excellence for outstanding outreach efforts with exceptionally high impact, given to the University of California Cooperative Extension Farm Water Quality Planning Project (State Program Winner), [http://extension.oregonstate.edu/weda/secure/files/documents/orginfo/2008WEDAawardofexcellencebooklet.pdf](http://extension.oregonstate.edu/weda/secure/files/documents/orginfo/2008WEDAawardofexcellencebooklet.pdf)


**Short Courses, Workshops, and Classes Developed and Taught**

"Principles of Groundwater Flow and Transport Modeling." 3-day course (annually)

"Introduction to Vadose Zone Modeling." 3-day course (irregularly)

"Groundwater, Wells, and Pumps: A Workshop for Growers." 1-day workshop (on demand)

"Drinking Water Source Assessment in Groundwater and Surface Water." 2-day course (annually)

"Introduction to Groundwater and Watershed Hydrology: Monitoring, Assessment and Protection." 2-day course (annually)

"Groundwater Hydrology." Graduate class, UC Davis

"Practice of Groundwater Flow & Transport Modeling." Graduate class, UC Davis

"The Global Groundwater-Agriculture Nexus" Graduate class, Universitaet Freiburg
Publications (since 2010)


JOHN L. LARGIER
Bodega Marine Laboratory, University of California Davis
PO Box 247, Bodega Bay, CA 94923, USA
E-mail: jlargier@ucdavis.edu Phone: (707) 875-1930

Professional Preparation
University of Cape Town, B.Sc. (Physics; Applied Mathematics), 1981.
University of Cape Town, Ph.D. (Oceanography), 1987.

Appointments
University of California Davis, Bodega Marine Laboratory, Dept Environmental Science & Policy:
   Professor, 2004-ongoing.
University of California San Diego, Scripps Institution of Oceanography:
   Research Associate, 2004-ongoing.
University of Cape Town (South Africa):
   International Research Associate, 2000-ongoing.
   Department of Oceanography, Senior Lecturer, 1998-1999.
   Department of Environmental & Geographical Science, Senior Lecturer, 1995-1997.
Council for Scientific & Industrial Research (CSIR, South Africa):

Selected Publications

Research Grants (last 3 years)
- Identifying the flow and control of pathogens from the land to the sea: tracking *Toxoplasma* from cats to sea otters, *National Science Foundation*, $1,860,000, 2005-2008.
- Evaluation of the South Bay International Wastewater Treatment Plant Receiving Water Quality Monitoring Program to Determine its Ability to identify Sources(s) of Recorded Bacterial Exceedances, *U.S. Environmental Protection Agency*, $249,948, 2003-2004.

• Campbell Cove tidal circulation study, *Sonoma County*, $72,000, 2003-2004


**Synergistic Activities**

• Innovative teaching of Coastal Oceanography to graduates and undergraduates in ecology, environmental engineering, geology, and wildlife health – development of an “environmental oceanography” perspective in which traditional oceanography is integrated into the study and resolution of key environmental issues.

• Advise state, local and federal government on coastal ocean issues, e.g., member of state (California) Clean Beach Task Force; past member of city (San Diego) Clean Water Task Force, advisor to US EPA on wastewater outfalls, advisor to California Energy Commission on coastal power plants.

• Development of the “*Bodega Oceanography Group*”, a collaboration of research and management agencies with interests in the oceanography of the northern Gulf of Farallones and north of Pt Reyes along the coasts of Marin and Sonoma Counties. Foci include Gulf of Farallones and Cordell Bank National Marine Sanctuaries and Pt Reyes National Seashore.

• Coastal ocean observing systems – previously in southern California and now in central and northern California (CeNCOOS). Oversee Bodega Marine Lab operations in HF radar mapping of surface currents, permanent coastal mooring, shore stations, and development of routine boat-based surveys (see bml.ucdavis.edu/boon). Developing collaborations.

• International collaborations with researchers in Chile, Spain, Namibia and South Africa on coastal oceanography in a context of marine populations, water quality, and fisheries.

• *Editor, Journal of Marine Systems.*

**Collaborators**

Collaborators & co-authors (last 5 years).

Ed Dever (OSU), Clive Dorman (SIO), Toby Garfield (SFSU), Dick Dugdale (SFSU), Frances Wilkerson (SFSU), Loo Botsford (UCD), Alan Hastings (UCD), Steve Bollens (UW), Juan Carlos Castilla (PUC/Chile), David Kaplan (UCD), Cathy Lawrence (UCD), Steven Morgan (BML/UCD), Alan Shanks (UO), Stan Grant (UCI), Sergio Navarette (PUC/Chile), Steve Lentz (WHOI).

Graduate advisees & postdoctoral scholars (last 5 years).

• Moninya Roughan, postdoc, Scripps Institution (UCSD), 2002-2005.

• Linda Rasmussen, postdoc, Scripps Institution (UCSD), 2003-2005.

• Linden Clarke, postdoc, Scripps Institution (UCSD), 2002-2004.

• Laura Carrillo, postdoc, Scripps Institution (UCSD), 2002-2003.

• Drew Lucas, PhD candidate, Scripps Institution (UCSD), 2003-2005.

• Carolynn Scearce, MS, Scripps Institution (UCSD), 2002-2004.

• Jenny Baldwin, PhD, University of Cape Town (South Africa), 2000-2004.

• Kerry Nickols, PhD candidate, UC Davis, 2005-

• Lauren Garske, PhD candidate, UC Davis, 2006-

• Rachel Fontana, PhD candidate, UC Davis, 2006-

• Emily Niebuhr, PhD candidate, UC Davis, 2006-

**Professional Societies and Associations**

American Geophysical Union (USA)
American Society of Limnology and Oceanography (ASLO)
Californian Estuarine Research Society (USA), President-Elect
Estuarine and Coastal Sciences Association (UK)
Estuarine Research Federation (USA)
Southern African Network for Coastal and Ocean Research, SANCOR (SA)
The Oceanography Society (USA)
BIOGRAPHICAL SKETCH: Jeff Loux

EDUCATION:


University of California, Los Angeles. M.S. Geography, 1980.


PROFESSIONAL AND ACADEMIC APPOINTMENTS

University of California, Davis
2009- present Chair, Department of Science, Agriculture and Natural Resources, UC Davis Extension
2000-present Director, Land Use and Natural Resources Program, UC Davis Extension
2002-present Adjunct Associate Professor, Department of Environmental Design, Landscape Architecture Program, Department of Human Ecology, U.C. Davis.
2000-2009 Facilitator/Mediator, Center for Collaborative Policy, California State University, Sacramento; Mediated the award-winning Sacramento Water Forum

Moore, Iacofano, Goltsman, Inc.
1998-2000 Director of Planning Services; Senior Facilitator, Manager, Davis Office

City of Davis, California
1992-1998 Community Development Director

Santa Cruz County, California
1990-1992 Assistant Planning Director

The Planning Collaborative, Inc.
1981-1989 Consulting Principal

SELECTED PUBLICATIONS RELATED TO THE MASTER’S PROGRAM


SYNERGISTIC ACTIVITIES

- James H. Meyer Distinguished Achievement Award, UC Davis, 2013
- Distinguished Leadership Award, Land Use and Natural Resources Program 30 Years of Distinguished Service, American Planning Association, California Chapter, 2012, Awarded at the Annual Conference.
- Principal Investigator on the New River Water Quality Improvement Project, California-Mexico Border relations Committee
- Co-Director, UC Davis Extension, Center for Water and Land Use, 2006-2011
- Advisory Group, Regional Blueprint Learning Network, UC Davis, Caltrans, Center for Regional Leadership, 2007-2009
- University Continuing Education Association (UCEA) West Region Honor of Excellence, for the Green Building and Sustainable Design Program, 2007
- Chair, Green Team, UC Davis Extension, 2008- present
- Advisory Committee Member, Center for Regional Change, UC Davis, 2008-present
- Member, UC Davis Sustainability Committee, 2008-present
- Technical Advisory Committee Member, City of Davis Climate Action Team, 2008-2010
- Elected Member, California Planning Roundtable, California Chapter of the American Planning Association, 2005-present
- Advisory Committee Member, Local Government Commission, Development of the Ahwahnee Water Principles, A Blueprint for Sustainability; 2005-2006
- Vice President and Board Member, Legislation and Policy, California Chapter of the American Planning Association, 2001-2003

SELECTED KEY-NOTE LECTURES AND INTERNATIONAL ENGAGEMENTS


RECENT UNIVERSITY SERVICE

- UC Davis Extension Representative: Research Coordinating Council, UC Davis, 2014.
- Representative from UC Davis to the UC/Mexico Initiative of the University Office of the President, 2014.
- Academic Federation Representative, UC Davis Graduate Council, 2013-present
- Host and Executive Steering Committee Member, 2012 California Higher Education Sustainability Conference (CHESC), Davis, CA June 2012.
- Executive Council Member, Office of University Outreach and International Programs Advisory Committee, UC Davis, 2009-present.
Curriculum Vitae: Mark N. Lubell, Ph.D. (June 2014)

Professor
Department of Environmental Science and Policy
One Shields Avenue
University of California, Davis
Davis, CA 95616 (530)
752-5880 mnlubell@ucdavis.edu
Personal webpage: http://www.des.ucdavis.edu/faculty/lubell/
Center for Environmental Policy and Behavior: http://environmentalpolicy.ucdavis.edu/

Academic Appointments

July, 2010-Present. Professor, Department of Environmental Science and Policy, University of California, Davis. Director, Center for Environmental Policy and Behavior.

Associate Professor, July 2006-July 2010. Department of Environmental Science and Policy, University of California, Davis.

Assistant Professor. Fall 2002-July 2006. Department of Environmental Science and Policy, University of California, Davis.

Assistant Professor. Fall 1999—Spring 2002. Department of Political Science, Florida State University.

Education

Ph.D.(8/99) Political Science, State University of New York at Stony Brook
  Major: Public Policy; Minor: Political Psychology, Quantitative Methodology
M. A. (12/96) in Political Science, SUNY at Stony Brook
B.A. (6/93) in Political Science, University of California San Diego

Awards

2010 Excellence in Education Award ASUCD Academic Affairs Commission, Nominee

2008-2010 Research Fellow, Institute for Science, Technology & Public Policy, Bush School of Government and Public Service, Texas A&M.

2006 Distinguished University of California, Davis Educator.

2005 Excellence in Education Award ASUCD Academic Affairs Commission, Nominee.

Pi Sigma Alpha Award for Best Paper at the 2002 Annual Meeting of the Midwest Political Science Association
Selected Journal Articles


Jay R. Lund  
Department of Civil and Environmental Engineering  
University of California, Davis, CA 95616  
(530) 752-5671, 752-0586  
jrlund@ucdavis.edu  
http://cee.engr.ucdavis.edu/faculty/lund/

Education  
Ph.D., Civil Engineering, University of Washington, December 1986  
M.A., Geography, University of Washington, 1983  
BSCE, Civil Engineering, University of Washington, 1983  
BA with honors, Regional Planning and International Relations, University of Delaware, 1979

Current Position  
Director, Center for Watershed Sciences, University of California - Davis  
Professor of Civil and Environmental Engineering, Department of Civil and Environmental Engineering. Research and teaching specialties are integrated engineering of water resource and environmental systems at regional, utility, and household scales, employing ideas from economics and operations research. Member: Civil and Environmental Engineering, Geography, Hydrologic Science, and International Agricultural Development graduate programs.

Books  

Refereed Journal Publications  


DEBBIE A. NIEMEIER, P.E., PH.D.

Dept. Civil and Environmental Engineering       (530) 752-8918
University of California, Davis               (530) 752-7872 (fax)
Davis, California 95616                      dniemeier@ucdavis.edu

EDUCATION
University of Washington, Seattle, WA
Ph.D., Civil and Environmental Engineering, 1994, Minor: Statistics

University of Maine, Orono, ME
M.S., Civil Engineering, 1991, Minor: Geographic Information Systems

University of Texas, Austin, TX
B.S., Civil Engineering, 1982

EMPLOYMENT

University of California, Davis, CA, Civil & Environmental Engineering
Jul 2002-Present        Professor
Dec 2012-Present

University of California, Davis, CA, Civil & Environmental Engineering
Jun 2010-Present        Director, UC Davis Sustainable Design Academy
Jul 1998-2010            Director, UC Davis-Caltrans Air Quality Project
Jul 2005-Jul 2009        Director, John Muir Institute on the Env., Assoc Vice Chancellor, Office of Research
Jul 2001-July 2004       Department Chair
Jul 1999-Jul 2001        Vice-Chair
Jul 1998-Jul 2002        Associate Professor
Jan 2000-Sept 2001       Faculty Assistant to the Provost
Jul 1994-Jul 1998        Assistant Professor

University of Washington, Seattle, Civil & Environmental Engineering
1991-1994               Research Assistant
1987-1990               T.Y. Lin International, Falmouth ME, Transportation Project Manager
1985-1987               City of San Marcos, San Marcos, TX, Traffic Engineer
1978-1987               Texas Department of Highways, Austin, TX, Engineer

PROFESSIONAL AFFILIATIONS
American Society of Civil Engineers
Transportation Research Board
Association for Environmental Engineers

PROFESSIONAL REGISTRATION/TRAINING
Texas: Professional Engineer
Mediator

HONORS
Aldo Leopold Leadership Award, 2006
Chancellor’s Fellow, 2000-2005
National Science Foundation, CAREER Award, 1997
Outstanding Mentor Award, UC Davis Consortium for Res. for Women, 1997
Outstanding Faculty Advisor, UC Davis, College of Engineering, 1995
ENO Foundation, Fellow, 1993

EDITORIALSHIPS AND BOARDS
Editor-in-Chief, Transportation Research, Part A, 2007-2012
Editorial Advisory Board, Transportation Research, Part B, 2003-Present
Capital Public Radio, Science Advisory Board, 2012-Present
Mars Corp, Sustainable Science Advisory Committee, 2009-Present
National Academy of Science, Board on Energy and Environmental Systems, 2011-Present
Elected, Member-at-large, AAAS Section on Engineering, 2007-2012
**PATENTS**

A Microfabricated Ionizer Structure Based on Unipolar Corona Discharge, *(US Pat. 11036648, Tien, Chua, Niemeier, Wexler)*

**DISSEMINATION OF RESEARCH, PUBLIC POLICY**


**SUBSET OF PUBLICATIONS**

5. Rouhani, O., D. Niemeier *(Forthcoming)* Urban network privatization: a small network example, *Journal of the Transportation Research, Part D*
EXPERIENCE

University of California at Davis, Dept. of Environ. Science and Policy
Professor 2009-
Assoc. Professor 2007-2009

Resources for the Future, Washington DC
Nonresident Fellow 2009-2012
University Fellow 2007-2010, 2012-
Senior Fellow 2006-2007
Fellow 1998-2006


Georgetown University, Adjunct Professor, Department of Economics 2005-2007

Stanford University, Visiting Scholar, Center for Environmental Science and Policy, Institute for International Studies 2003-2004

EDUCATION

Ph.D., University of California at Davis, Agricultural and Resource Economics 1998

B.A. with Distinction, Boston University, Economics and Mathematics 1991

University of London, University College, Environmental Economics 1990

SELECTED PROFESSIONAL ACTIVITIES

• Member, National Research Council, Committee on Evaluating the Effectiveness of Stock Rebuilding Plans of the 2006 Fishery Conservation and Management Reauthorization, Feb 2012-present.

• Member, National Research Council, Committee to provide a review of the U.S. National Ocean Acidification Research Plan, 2012-2013.

• Reviewer, Approaches for Ecosystem Services Valuation for the Gulf of Mexico After the Deepwater Horizon Oil Spill: Interim Report, National Research Council, 2011.


• Testimony, Economic Frameworks and values for regulatory assessment, Little Hoover Commission, Sacramento CA (Jan. 27, 2011)


• Member, NOAA Science Advisory Board, Research and Development Priorities Taskforce, Nov. 2011-2012.
• Member, Planning Committee for NOAA’s Ecosystem Research Science Challenge Workshop in 2012
• Member, NOAA Science Advisory Board, June 2007-June 2010. (2nd term 2010-2013)
• Member, NOAA Science Advisory Board Social Science Working Group, 2007-2008.
• Member, National Research Council, Committee to review The National Science and Technology Council’s Joint Subcommittee on Ocean Science and Technology (JSOST) Research Priorities Plan, 2006-2007.
• Associate Editor, Journal of Theoretical Ecology, June 2011-present.
• Associate Editor, Marine Resource Economics, 2001-2005.

AWARDS
2014 Distinguished Scholarly Public Service Award for outstanding public service contributions, UC Davis Academic Senate
2012 Rosenstiel Award in Oceanographic Science for outstanding achievement and distinction in marine policy and economics, 38th recipient.

SELECTED JOURNAL ARTICLES (#’S CORRESPOND TO FULL CV)


CURRICULUM VITAE
MARK WILLIAM SCHWARTZ

Professor
Department of Environmental Science and Policy  
One Shields Avenue  
University of California  
Davis, CA 95616
fax (196)-752-3350  
ph: (916)-752-0671  
e-mail: mwschwartz@ucdavis.edu

Education
1985-1990 Florida State University; Ph.D., Biology.
1982-1985 University of Minnesota; M.S., Ecology.
1976-1980 University of St. Thomas (St. Paul, MN); B.A., Biology, Chemistry.

Professional Experience
2009- Director, John Muir Institute of the Environment
2003- Professor, Environmental Science and Policy, U-Davis
2001-2002 Program Officer, Division of Environmental Biology, National Science Foundation
2000-2003 Associate Professor, Environmental Science and Policy, U-Davis
1998-2000 Assistant Professor, Environmental Science and Policy, UC-Davis.
1994-1998 Assistant Research Scientist, Center for Population Biology, UC-Davis.
1990-1994 Assistant Professional Scientist. Illinois Natural History Survey, Champaign, IL.
1987 Research Assistant. Tall Timbers Research Station; Tallahassee, FL.

Journal Publications

2013

2012


2011


2010


2009


Biographical Sketch of Daniel Sperling
Professor and Director, Institute of Transportation Studies, University of California, Davis
+1 530.752.7434, dsperling@ucdavis.edu

A. Professional Preparation
Cornell University                    Civil and Environmental Engineering        BS 1973
University of California, Berkeley  Transportation Engineering (minors in economics and energy resources)     MS 1979
                                         PhD 1982

B. Academic and Professional Appointments
2014-2015 Vice Chair and Chair, Transportation Research Board (National Academies)
2013-present Interim Director, Energy Institute, UC Davis
2012-2013 Chairman (and Vice Chair), California Fuel Cell Partnership (public-private entity)
2011-present Faculty Director, Policy Institute for Energy, Environment, and Economy, UC Davis
2007-present Board Member, California Air Resources Board
2007-2009 Acting Director, Energy Efficiency Center, University of California, Davis
1991-present Founding Director, Institute of Transportation Studies, University of California, Davis
1991-present Professor, University of California, Davis. Joint appointment in Department of Civil & Environmental Engineering and Department of Environmental Science & Policy.
1982-1991 Assistant and Associate Professor, University of California, Davis
1976-1977 Environmental Planner, U.S. Environmental Protection Agency

C. Major Awards
- Blue Planet Prize for being “a pioneer in opening up new fields of study to create more efficient, low-carbon, and environmentally beneficial transportation systems” (Asahi Glass Foundation), 2013
- Heinz Award for “achievements in the research of alternative transportation fuels and responsibility for the adoption of cleaner transportation policies in California and across the United States,” 2010
- Robert M. Zweig Public Education Award of the National Hydrogen Association, 2009
- Barry McNutt TRB Award for Best Paper in Energy, 2008 (Jon Hughes, Chris Knittel, and D. Sperling)
- Lifetime National Associate, National Academies, 2004
- Carl Moyer Memorial Award for Scientific Leadership and Technical Excellence, Coalition for Clean Air, 2002
- Clean Air Award, American Lung Association, Sacramento, California, 1997
- Distinguished Public Service Award, University of California, Davis, 1996
- Juror, Electric Vehicle and the American Community: National Planning and Design Competition, 1993

D. Key Leadership Activities (since 2009)
- IPCC (Intergovernmental Panel on Climate Change), Lead author, transportation chapter, WG III, 2006-07 (4th Assessment), 2011-14 (5th Assessment)
- US Transportation Research Board Committees (National Academies):
  - Vice Chair and Chairman, 2014-15
  - Member, Standing Committees on Transportation and Sustainability, Transportation Energy, Alternative Transportation Energy, New Transportation Systems and Technology, and Task Force on Climate Cha
- Brunei National Energy Research Institute, International Advisory Committee, 2013+
- King Abdullah Petroleum Research Center (KAPSARC, Saudi Arabia), International Advisory Committee, 2010+
- Chair, California Fuel Cell Partnership, 2013 (member of Executive Committee, 2012+)
• Chair, Council on Future of Transportation, Davos World Economic Forum, 2008-09
• Board member, California Air Resources Board, 2007+
• Royal Dutch Shell External Review Committee for Sustainability, Member, 2010-13
• Nissan Environmental Advisory Committee, Member, 2005+

At UC Davis…
• Founded Policy Institute for Energy, Environment, and Economy at UC Davis, 2012.
• Founded Institute of Transportation Studies at UC Davis in 1991.
• Founded a highly successful biennial conference on transportation and energy policy in 1988 under the auspices of the US Transportation Research Board of the National Research Council.
• Founded first university-based energy efficiency center in the US in 2006.

E. Selected Publications (out of 250 technical papers, books, reports)

MICHAEL R. SPRINGBORN
Assistant Professor
Department of Environmental Science & Policy
University of California, Davis
530.752.5244
mspringborn@ucdavis.edu

ACADEMIC EXPERIENCE

Assistant Professor - Department of Environmental Science and Policy, U.C. Davis (2008-present)

EDUCATION

Ph.D.  Environmental Science and Management (2008)
Economics and Environmental Science Training Program
Donald Bren School of Environmental Science and Management
University of California, Santa Barbara

M.A.  Economics, University of California, Santa Barbara (2004)

B.A.  Psychology, University of Colorado, Boulder (1999)

AREAS OF SPECIAL INTEREST

Environmental and resource economics, decision-making under uncertainty.

WORKING PAPERS


JOURNAL PUBLICATIONS


**BOOK CHAPTERS**


**OTHER PUBLICATIONS**

Brian D. Todd  

*curriculum vitae*  

Department of Wildlife, Fish, and Conservation Biology  
University of California, Davis  
One Shields Ave.  
Davis, CA 95616  
Phone: (530) 752-1140  
Fax: (530) 752-4154  
Email: btodd@ucdavis.edu  
Website: [http://toddlab.ucdavis.edu/](http://toddlab.ucdavis.edu/)

---

**EDUCATION**

**PhD**, Ecology – University of Georgia  
2008  

**MS**, Conservation Ecology – University of Georgia  
2003  

**BS**, Ecology – University of Georgia  
2000

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**PROFESSIONAL EMPLOYMENT**

**Associate Professor**  
2014 – present  
Department of Wildlife, Fish, and Conservation Biology  
University of California, Davis

**Assistant Professor**  
2009 – 2014  
Department of Wildlife, Fish, and Conservation Biology  
University of California, Davis

**Postdoctoral Research Associate**  
2008 – 2009  
Department of Fisheries and Wildlife Sciences  
Virginia Polytechnic Institute and State University

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**SELECTED RECENT PUBLICATIONS**


Nafus MG, Tuberville TD, Buhlmann KA, **Todd BD**. 2013. Relative abundance and demographic structure of Agassiz’s desert tortoise (Gopherus agassizii) along roads of varying size and traffic volume. *Biological Conservation* 162:100-106.


**SELECTED GRANTS AND CONTRACTS**

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Principal Investigator(s)</th>
<th>Funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 – present</td>
<td>Efficacy of roadway fencing as proposed mitigation for desert tortoise management. US Bureau of Land Management. <strong>Todd BD</strong>, Tuberville TD, Buhlmann KA.</td>
<td><strong>Todd BD</strong>, Tuberville TD, Buhlmann KA.</td>
<td>$470,000.00</td>
</tr>
<tr>
<td>2011-2013</td>
<td>Development of a California reptile and amphibian conservation and management strategy. California Department of Fish and Game. <strong>Todd BD</strong>.</td>
<td><strong>Todd BD</strong>.</td>
<td>$216,095.00</td>
</tr>
<tr>
<td>2010- present</td>
<td>Recruitment, survival, and head-starting of desert tortoises in Mojave National Preserve. US National Park Service. Tuberville TD, Buhlmann KA, <strong>Todd BD</strong>.</td>
<td><strong>Todd BD</strong>.</td>
<td>$450,000.00</td>
</tr>
<tr>
<td>2010-2015</td>
<td>Use of habitat suitability models and head-start techniques to minimize conflicts between desert tortoises and energy development projects in the Mojave Desert. 2010. California Energy Commission. <strong>Todd BD</strong>, Tuberville TD, Buhlmann KA.</td>
<td><strong>Todd BD</strong>.</td>
<td>$238,310.00</td>
</tr>
</tbody>
</table>

**SELECTED SYNERGISTIC ACTIVITES**

**NSF Review Panel, Division of Integrative and Organismal Biology**

**April, 2014**

**Organizer and Host**

California Reptile and Amphibian Conservation and Management Forum

- Organized a regulatory summit to evaluate management and conservation concerns for California’s native reptiles and amphibians.
- Stakeholders included members of the public, researchers, federal and state agency biologists, environmental consultants, and non-profit groups.

**Board of Directors, Chairman**

**2008 – present**

Amphibian and Reptile Conservancy, 501(c) 3

- Non-profit organization created to raise and administer funding for amphibian and reptile conservation through existing partnerships and organizations affiliated with Partners in Amphibians and Reptile Conservation group.
- [http://www.amphibiansreptiles.org](http://www.amphibiansreptiles.org)
Thomas M. Young
Department of Civil & Environmental Engineering ph: 530-754-9399
University of California fax: 530-752-7872
Davis, CA 95616 email: tyoung@ucdavis.edu

Education
University of Michigan, Ph.D., Environmental Engineering, 1996
University of California, Berkeley, M.P.P., Graduate School of Public Policy, 1987
Michigan State University, B.S. with Honors, Chemical Engineering, 1985

Professional Experience
University of California, Davis, Professor (7/06-present)
University of California, Davis, Associate Professor (7/01-6/06)
University of California, Davis, Assistant Professor (11/95-6/01)
University of Michigan, Research and Teaching Assistant (9/91-9/95)
US Environmental Protection Agency, Environmental Protection Specialist (8/87-8/90)

Peer-Reviewed Journal Publications (Selected as relevant to this proposal from 78 total)


Fojut, T.L., Young, T.M. “Pyrethroid sorption to Sacramento River suspended solids and bed sediments” Environmental Toxicology and Chemistry, 2011, 30(4): 787-792.


Hwang, H.-M., Green, P.G., Young, T.M. “Historical trends of trace metals in a sediment core from a contaminated tidal salt marsh in San Francisco Bay” *Environmental Geochemistry and Health*, 2009, 31:421-430.


Nov 18, 2014

Dear Dr. Schwartz:

I am writing in response to your request to consider participating in the proposed one-year, coursework-only Environmental Policy MS. Please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issues-based policy studios, and acting as faculty mentors for student practicum.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

Sincerely,

Gwen Arnold, PhD
University of California, Davis
Department of Environmental Science and Policy
2144 Wickson, One Shields Avenue
Davis, CA 95616
Nov 15th, 2014

Dear Mark

In response to your request to consider participating in the proposed, 1 year, coursework only Environmental Policy MS, please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issues-based policy studios and/or seminars, and acting as faculty mentors for a student practicum.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

Best wishes

Tim Caro
November 14, 2014

Dear Dr. Schwartz,

I am writing in response to your request to consider participating in the proposed, 1-year, coursework-only Environmental Policy MS. Please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issue-based policy studios and acting as a faculty mentor for student practicums.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

Sincerely,

Susan Handy, Professor and Chair
Department of Environmental Science & Policy
15 November 2014

Dr. Mark Schwartz  
Chair, Steering Committee  
Environmental Policy & Management  
UC Davis

Dear Dr. Schwartz,

Letter of Support for Proposed MS in Environmental Policy and Management

I am writing to record my support for development a 1-year, coursework MS in Environmental Policy and Management. Please add my name to the list of participating faculty. I understand that participation will be largely through teaching classes, leading issue-based policy studios, and acting as a faculty mentor for student practicums. I envisage participating in these activities and am enthusiastic about being part of the inaugural faculty in launching this program. Specifically, I will provide input on marine and coastal topics.

Sincerely,

John L. Largier  
Professor of Oceanography
Nov 18, 2014

Dear Dr. Schwartz;

I am writing in response to your request to consider participating in the proposed, one year, coursework only Environmental Policy MS. Please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issues-based policy studios, and acting as faculty mentors for student practicum.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program. I am very excited about this new degree opportunity, and look forward to assisting you in any way I can.

Sincerely,

Jeff Loux, Ph.D.
Chair, Science, Agriculture and Natural Resource Department, UC Davis Extension
Adjunct Associate Professor, Human Ecology Department, Landscape Architecture Program
Nov 13, 2014

Dear Dr. Schwartz;

I am writing in response to your request to consider participating in the proposed, 1 year, coursework only Environmental Policy MS. Please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issues-based policy studios and acting as faculty mentors for student practicum.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program. I teach many classes on environmental policy, including public lands management, water policy, and social-ecological systems. The topics covered in these classes will make good contributions to the master’s degree curriculum.

Sincerely,

[Signature]

Mark Lubell
Professor
Department of Environmental Science and Policy
UC Davis
Dear Dr. Schwartz,

I am writing in response to your request to consider participating in the proposed, 1 year, coursework only Environmental Policy MS. Please add my name to the list or participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issue-based policy studios and acting as a faculty mentor for student practicums.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

It is astonishing that UC Davis has not had a practitioner-oriented environmental policy masters program for many years or decades. The campus is uniquely positioned in the heart of major water and environmental problems for California, in the Central Valley and very near the state capitol. UC Davis also clearly leads most of the nation’s campuses in environmental scientific and engineering expertise and has a deep and longstanding mission to engage in solving societal problems. However, the campus’ engagement in environmental policy has not formally extended deep into its educational program.

The proposed environmental policy and management MS program will provide a great service to the state. The proposed program will produce sorely needed environmental management expertise needed by nearby employers, as well as those worldwide. The program also will serve the campus and campus science in forging closer connections between research and the very real problems and resources available nearby in the state capitol, as well as much further afield.

There is never an easy time to begin a new graduate program, but I think we can all agree that it is high time that this program be established at UC Davis.

Sincerely,

Jay R. Lund, Director
Center for Watershed Sciences
and Professor of Civil and Environmental Engineering
Department of Civil and Environmental Engineering
University of California, Davis
Nov 13, 2014

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Sincerely,

James Sanchirico

[Signature]
21-Nov-14

Dear Dr. Schwartz,

I am writing in response to your request to consider participating in the proposed, 1 year, coursework only Environmental Policy MS. Please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issue-based policy studios and acting as a faculty mentor for student practicums.

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Sincerely,

Dr. Mark W. Schwartz
Director, John Muir Institute of the Environment
Nov 12, 2014

Re: Letter of Support for Environmental Policy MS Degree Program

Dear Mark,

I enthusiastically support and intend to participate in the proposed Environmental Policy Masters Degree Program. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issue-based policy studios and acting as a faculty mentor for student practicums.

I envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

Sincerely,

Daniel Sperling
Professor of Civil and Environmental Engineering
Professor of Environmental Science and Policy
Director, Institute of Transportation Studies
Interim Director, Energy Institute
Nov 13, 2014

Dear Dr. Schwartz,

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While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

Sincerely,

Michael R. Springborn
November 14, 2014

Dear Dr. Schwartz;

I am writing in response to your request to consider participating in the proposed, 1 year, coursework only Environmental Policy MS. Please add my name to the list or participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issues-based policy studio’s and acting as faculty mentors for student practicum.

While not committing to any particular tasks, I can envision participating in these activities and would like to be considered in the inaugural pool of faculty to launch this program.

Sincerely,

Brian D. Todd

Associate Professor
Department of Wildlife, Fish and Conservation Biology
University of California, Davis
One Shields Ave.
1077 Academic Surge
Davis, CA 95616
email: btodd@ucdavis.edu
phone: 530-752-1140
fax: 530-752-4154
website: http://toddlab.ucdavis.edu/
Nov 13, 2014

Dear Dr. Schwartz;

I am writing in response to your request to consider participating in the proposed, 1 year, coursework only Environmental Policy MS. Please add my name to the list of participating faculty. As this is not a research degree, I understand that faculty participation will be largely through teaching classes, leading issues-based policy studios and acting as faculty mentors for student practicum.

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Sincerely,

[Signature]

Thomas Young
Professor