

Environmental Science (EVS) 610
Multidisciplinary Problem Solving in Coastal Ecosystems
A Coastal Institute IGERT Project Class
Fall 2006

3 credits of lecture and lab

Wednesdays 9:00 a.m. – 12 noon

Fridays as noted 9:00 to 12 noon

Field trips to constitute the remaining 3 hours each week
as an aggregate over the course of the semester.

Location: Coastal Institute Rm. 117 Kingston Campus; occasionally, alternate meeting
sites will be announced in advance.

INSTRUCTORS:

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Additional Faculty Participants

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Dr. Cheryl Foster, Philosophy, cherylf@uri.edu

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Dr. Art Gold, Natural Resources Science, agold@uri.edu
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COURSE OVERVIEW: Developed specifically for the CIIP program, this course will consist of two components: (1) lectures by visiting scholars on integrated research/policy in estuarine, watershed, climate and fisheries research, and (2) training and exercises in case studies of science and policy in coastal management.

In the training and exercise component, URI faculty and CIIP Trainees from the 2005 cohort have been assigned to project teams mixing interests in natural science and social science. The 2006 cohort will join the teams as guided by their mentor peers. Work could consist of analyzing a case study or a book featuring a coastal resource management problem. Humanities scholars, natural scientists, social scientists and external guests from a variety of perspectives will alternately facilitate the discussion and introduce specific skills in framing issues, e.g., communication, integrating policy and science, framing basic scientific questions and working in multidisciplinary teams. We will be attentive to using traditional sources of information (journals and books) as well as non-traditional environmental science and policy information sources, e.g., Green Wire, Land Letter, and Policy News Updates from the Ecological Society of America.

OUTCOMES: Each class will serve to introduce a series of skills. It is not expected that you will have mastered all of the skills following the completion of one class; rather, you should demonstrate some evidence of initial mastery. Each class in the CIIP curriculum will reinforce particular skills and introduce new ones. Second-year students will be expected to demonstrate deeper mastery of skills.

After the Fall class, you should have the burgeoning ability to:

- Determine audiences that are relevant to an issue
- Identify core principles of natural and social sciences that bear on an issue
- Articulate action steps and next steps
- Develop basic strategy based on decision points
- Present a case clearly and succinctly
- Identify barriers to change
- View Issues from different perspectives

You should have an emerging ability to:

- Frame a problem in all of its dimensions
- Articulate scales of an issue and the information required to address the issue
- Engage in critical analysis as an individual and within a team
- Make decisions through extrapolation
- Identify all disciplinary expertise relevant to an analysis
- Demonstrate mastery of the process of the scientific method and how scientists approach solving a problem.

You should demonstrate an increasing ability to:

- Write for and present to different audiences
- Work effectively individually and in teams
- Apply criticism in a constructive manner toward professional growth
- Anticipate challenges and take initiative in meeting them
- Demonstrate leadership

Assignments

Topical Summaries: For each of the three topic areas, you (CIIP Trainee cohort 2006) will individually provide a two-page paper in response to the collective speakers, discussions and experiential dimensions related to each topic. You may elect to focus on whatever aspect of the topic you choose, but in general, this paper should outline the issues that could come into play in dealing with this topic in a “real world” context, the ways those issues could be addressed, as well as ways in which your thinking might have evolved or changed during the investigation of the topic. There is no need to create a synopsis of the unit since we will all hold that information in common. Do make a real effort to address your lens of bias (how your unique set of values, experiences and knowledge combine to create a specific way of viewing issues – more on this later). That is not to say that you may not elect to view the topic through that lens (or are even capable of avoiding it completely); rather, it is important that you determine how you view and perceive information through that lens so you are actively aware of its influence as opposed to subconsciously acting through it. You will upload these papers to the TrueOutcomes™ e-portfolio on the deadline dates listed below. These papers are for internal distribution only and will not be publicly available over the Internet. Please follow the transmittal instructions under **E-portfolio**.

The individual response papers will be assessed by a primary faculty reader with other faculty serving as secondary readers and respondents. The grade will be assigned by the primary reader. In addition, the 2005 CIIP Trainee cohort will serve as peer reviewers on these papers with each of you reviewing one paper for each module. Please make the assignment of reviewers and rotate them so each of you is providing feedback to a different author on each module. Faculty assignments are as listed below.

- 1) Lobsters: Resource Management Unit Paper DUE 10/4, Primary Reader*: Q Kellogg
- 2) Climate Change Unit Paper DUE 11/1, Primary Reader*: Judith Swift
- 3) Urban Waterfront Unit Paper DUE 12/12, Primary Reader*: Jim Opaluch

**The primary reader is not expected to be the sole authority on the given topic; rather s/he will be responsible for gathering comments from all CIIP faculty and organizing the comments into a comprehensive whole.*

Team projects will be evaluated on a two-tier system. Second-year students will be expected to show leadership and an increased level of sophistication in planning and execution of assigned units as well as mentoring of first-year students. First-year students will be expected to serve the team effort and contribute to the ongoing planning and execution. Given that there is a learning curve from one team to the next, we expect to see continued growth in these team efforts. The methods you develop to function efficiently as a team are as important as the results of your work. Jim, Q and Judith will assign grades with input from other participating faculty.

Op-ed assignment: Each of the 2006 cohort is responsible for writing an op-ed and getting it published. Each of the 2005 cohort is expected to mentor one of the 2006 cohort to provide guidance on a task you have previously accomplished. The op-ed could be on one of the topic areas in the course or on the broader theme of the application of science to important policy issues pertinent to coastal zones. When you have decided on a topic, please run it by Jim, Judith or Q before beginning the writing process. There are local papers, ring papers, the Providence-Journal, the Boston Globe, The New York Times, the Narragansett Bay Journal, The Independent (as in London, as well as South County), etc. Think big but get it placed. DUE date, which means published or accepted for publication, is December 22nd. Cast a wide net when you send these out to media outlets. You will also provide a copy to the group outlined in this memo as an email attachment. Please submit final copy to the faculty at the time you submit it to a print media source. An electronic media source is also acceptable if it is reputable so craigslist and Merlin's blog are out. Chip Young, our journalist par excellence (he has been known to wear a fedora while chomping on a cigar) will serve as your invaluable advisor with media-savvy tips.

Student-led Synopsis and Reflection: All students will individually prepare a list of open, unanswered questions or issues that s/he has identified for each of the three topic areas. There may also be some meta-questions that arise. As a group you will collectively gather the individual questions and consolidate them into a single list. You will repeat this process for each topic unit. At the end of the semester, you will consolidate all three lists into a single "package" paying special attention to identifying overarching themes, ideas, concepts, issues, uncertainties and/or patterns that have emerged. This collection will be the basis for your preparation for the final presentation. You will present this information to us in whatever context, form, or format that you see fit, e.g., in writing, as oral and/or visual presentations, interactive audience or lecture format, or a combination of these. You may use both quantitative and qualitative methods as organizing principles. It is your decision as to how you make the groups of questions informative and useful beyond sheer reflection - not that reflection in and of itself is not useful. It worked for Einstein and Emerson among others. To that point, we will have focused on independent topical units and each one is content based. However, most important to the goals of this course are the overarching patterns that emerge. We will evaluate whatever you elect to do. This assignment is deliberately surrounded with uncertainty. You have the opportunity to set the agenda paying careful attention to the words "synopsis" and

"reflection." You will report your discoveries made through reflection on Friday, December 15th from 9:00 a.m. – noon.

There are two distinct classes of what are called thoughts: those that we produce in ourselves by reflection and the act of thinking, and those that bolt into the mind of their own accord.

- Thomas Paine

Communication Skills: Each of you in the 2006 cohort will have a one-hour assessment meeting with Judith on your presentation skills. We will both assess your current state and write a prescription for growth. Available times will be emailed to you and you can select one that is most convenient. 2005 cohort: time to jump in and hone those skills.

Submission of material to e-portfolio: Instructions will be posted on the web site shortly.

Be sure you have a good virus checker on your computer. You can download good protection from the IT site on the URI web page. <http://www.uri.edu/virus/>

PRE-COURSE PREPARATION

As you read Trevor Corson's *The Secret Life of Lobsters* consider the following questions:

- What biases do you bring to the topic?
- How do you view applied coastal science and coastal decision-making as it occurs in the history presented?
- What are the indicators of success?
- What constitutes failure?
- What are the challenges?
- What are the compelling motivations?
- What are the time frames?
- Who are the concerned audiences?

Having read the book and keeping these questions in mind, do a little background research on our first guest speaker, Stan Cobb, who we will be hosting in our class on September 8th. Generate your own list of questions to be used in our discussion with him

based on what you know of his background and the reading you have done. Additionally, generate a second list of more overarching questions you anticipate this course will raise and/or hope to get answered over the course of the semester. This second list will be revisited as we compile our larger list of unanswered questions during the semester.

STUDENT TEAM ASSIGNMENTS FOR TOPICS

Topic 1 – Lobsters: A Case Study in Resource Management

Topic 2 – Climate Change

Topic 3 – Urban Waterfronts

Students	Topic 1: Lobsters – Resource Management	Topic 2: Climate Change	Topic 3: Urban Waterfronts
2005 Cohorts	Cathy, Abby, and Steph	Karen and Erika	Jason
2006 Cohorts	Josh, Kifle, Leanna, and Leslie	Kifle, Leslie, Tiffany, and Anna	Leanna, Josh, Tiffany, and Anna

Other readings as applicable and assigned including excerpts from articles, magazines, journals and popular press.

GENERAL NOTES: This syllabus is an outline of proposed events. It is subject to change. We will never change it to make anything due earlier for you. You as teams -- or we faculty in consultation with you -- may change the order of things to allow for a special opportunity or to allow additional exploration on a particular topic. Supplementary readings may be added along the way by unit leaders, external guests or the faculty. Any of the above may suggest readings as we develop a greater sense of the learning agenda. For the most recent updates, continue to check this CIIP course online at

<http://www.ci.uri.edu/ciip/FallClass>

This course is a dynamic design in order to provide the best possible series of learning opportunities.

GROUND RULES FOR THIS CLASS: It is expected that you will resolve the distribution of team assignments and always submit a statement of team effort that describes the work each contributed and affirms the equity of the creation of any work product. (Second-year teams have already begun this effort.) Moreover, any additional team assignments should be discussed early on so project leaders are assigned and a timeline agreed upon. Everyone is expected to carry his/her share of class discussion and to respect the right and time for others to speak. Needless to say, electronic telecommunications devices should remain shut off during class unless you are a member of a SWAT team or essential to national security.

GRADING: This class is graded on an S/U basis. You will be graded on the work you present both in class and as written assignments. At all times, you will be evaluated for the quality of your analytical thinking and the skill of your verbal and written communication. For information on grading for graduate students, see the Graduate Student Manual.

The breakdown is as follows but we are not slavish about its application; rather, this is a guideline:

- In-class participation and blog postings..... 20%
- In-class team presentations / organization..... 30%
- Op-ed article 20%
- Individual Papers..... 30%

ROLES People Play in the Class

Module Teams: Teams of students take the lead on each theme module. Student teams will carefully select/read the required materials and collectively (as a team) dissect out the core issues of the topic and the various disciplinary considerations – economic, ecological, social, political, etc. As the catalyst for the examination of an issue, you will ask your selected visiting scholars to informally give you their perspective on their field. The assigned module team will lead the interaction with visiting scientists when we meet in the class. This is a chance for all students (and faculty) to learn from a national expert. Have good questions prepared. Remember – and we all need to be reminded of this – the point of the questions is to learn, not to demonstrate what you know. Take some risks. One session for each module has been set aside for you to present what you think are the dimensions to the issue you have been assigned. Your team will present the issue(s) to the class and frame what you think are the critical dimensions. The class will then discuss and critique your synthesis. You will also bring to class local experts (the discussants) who will provide critique and insight as well. The critique is important as a tool for growth so be prepared to accept criticism as part of our collective endeavor to get to some meaningful findings, which may prove to be even more questions.

CIIP Trainees: Much of the learning in this class will come from your work and scholarly contributions. You have top priority access with our visiting scholars. When arranging their visits, you should create opportunities to meet and chat with them. They are here to work with you, not the faculty. We encourage you to take them out socially at the end of the day. Great learning can happen at Starbucks or The Ocean Mist. You are also the front line of critical review of module team reports. In the vernacular of the day,

you are being empowered. Good leadership begins with the wise use of authority. Use it well.

Discussants: You are the local experts on the topics we have invited you to participate in discussing. You should attend the sessions with our visiting scholars. On the meeting where the students review the dimensions of an issue, you should be prepared to reflect upon your experience with the topic and identify domains of an issue that in your personal experience are extremely important. Please comment on the student's review of the issue as well. Your contributions will provide a big slice of reality or life in the trenches. We expect that some of your comments will reflect conflict, uncertainty and even examples of failures. We invite you to expose the underbelly of your work. If you wish personal time with our visiting scholar, please let Q Kellogg know in advance.

Faculty Participants: You are an important component of this process. You will be viewing the issues through your own distinct disciplinary lens of bias. Share those perspectives in class discussion. Among us we can formulate a very comprehensive assessment of the issues we are discussing. Please read the assigned readings before classes.

Visiting Scholars: Please provide the following:

Any readings you want the students to have gone through prior to your visit. Email your list to the student contact that is coordinating your trip.

You will give a public noontime lecture on a topic of your choice. Your audience will be from very different disciplines but can handle technical complexity. The more you can weave the different dimensions -- ecological, biological, economic, social, political, policy ... -- of your work into your seminar the better.

You will be meeting with the class to answer student questions about your research or the issue on which you work. Please plan 20 minutes of informal remarks to the students that reflect on:

- Who you are, what you work on, and why it is important
- Your approach in developing solutions to the problems you work on
- Challenges and successes you have had in melding science with decision-makers or resource managers
- Risks you have taken, the result and what you learned

The students will arrange private meetings to interact with you one-on-one or in small groups. We are encouraging the students to monopolize your time so please do not see our absence from some informal gatherings as disinterest; rather, it is part of our commitment to give the students full and free access to the great minds on these issues. If possible, we would appreciate it if you could bring reprints of some of your recent publications.

COMMUNICATION: We have various forms of communication, electronic storage sites and critique functions in the CIIP. Among these are the blog, the e-portfolio, the website, listserv, email and face-to-face meetings. To prevent confusion, here is a brief guideline as to the purpose and use of each communication mechanism.

Website: This is our interface with the world and the place to provide information about our activities and opportunities for future students. It will also assist alumni in staying connected with the CIIP. Perhaps most importantly, the website is our PR for the CIIP and should show our best thinking and accomplishments to the larger community including scientists, our funding agency, NGOs, elected officials and the lay public. We also actively use it for all classes and this is the place to find the latest and most complete information on the curriculum.

Blog: The blog is a password-protected site but within it there is a general posting area, a password-protected faculty-only area and a password protected student-only area. The blog's purpose is to provide an electronic medium to allow and support further discussion of topics covered in classes or related experiences from the field. In essence it is an open forum to allow for the continued pursuit of concepts, ideas and debate.

Listserv: This is a comprehensive email list that goes to all members of the CIIP community simultaneously, e.g., CIIP trainees, faculty, professional staff, and the CIIP Council. Its purpose is to provide succinct and immediate notice to members on matters of interest to all, e.g., reminders on speakers, meetings, etc. Since the listserv fills everyone's mailbox with each posting, it should never be used for superfluous or person-to-person communication. Even a simple "thank you" fills everyone's mailbox so use the list wisely.

E-portfolio: The e-portfolio serves several functions: 1) a storage and retrieval site for student work; 2) an evaluation site for faculty and peers; and 3) a storage area that allows selective showcasing of student work to the external world.

E-mail: E-mail is to be used when there is a need for interpersonal or small group communication that need not go to the whole listserv. Since e-mail is a very challenging medium in the absence of face-to-face (f2f) communication, e.g., the nonverbal communication is missing and emoticons just don't fill that void (in fact, some of us loathe emoticons), it is essential to be wary and wise in determining when e-mail is the best mechanism for communication. If someone down the hall is providing you with a challenging difference of opinion, walk down the hall and engage f2f. If you need to tell someone that you'll meet her at 5:15 a.m. for that trip to watch Phragmites grow, send an e-mail. It is largely a matter of personal preference combined with sensitivity for the communication needs and styles of others.

Face-to-face communication: This may seem apparent as something that is employed in the classroom, in a meeting with a major professor or a peer, but it is not to be taken

lightly. While we all have developed the greatest skill set in this area, there is still plenty of room for miscommunication; however, it is the preferred method to discuss and resolve any disagreement, to put forth suggestions or criticisms, to mentor, to listen, to praise and to provide support.

ATTENDANCE: Timely attendance is expected. You are graduate students and we know you want the stimulation of class discussion with a phalanx of professors, experts, and your peers. In the case of a graduate program, there is a tremendous opportunity to learn from fellow classmates. If the class is functioning as it should, we professors will serve as informed moderators and participants more than traditional instructors. If you have an emergency and will not attend on a given day, please call or e-mail a member of your team. (A contact sheet will be circulated during orientation.) Class participation is a crucial aspect of our evaluation of your work. If you are part of a presenting team, your absence would be justifiable only if you cannot fog a mirror. We place tremendous value on teamwork and expect you to all to join us in building a culture of learning free of gender-bound behavior and respectful of everyone's point of view.

HONOR CODE: We expect each of you to contribute your own work; however, we also expect you to work together as part of the team process to solve problems, achieve solid analysis, discuss cases, and even to prepare and explore the theses of your papers. We also expect that you will be direct about crediting yourself and/or others about completed work. Assisting each other is a major part of this learning experience. The only caveat is to acknowledge that assistance. With regard to group work, you are responsible for disclosing the extent of your work and to be forthright about how much you did or did not contribute. This saves each of you from ever having to be in the awkward position of reporting or covering for another student. Fairness is a core value. We also know each of you wants to be honorable in your individual or group projects. As you know, you must always include citations of any research. Faculty are asked to inform all students that the University of Rhode Island has very clear rules pertaining to plagiarism. See The University Manual, 8.27.10-8.27.19 and [The Graduate Student Manual, 4.95.](#)

Special Needs: If you have any special circumstances arising from a disability, please let me know how I can assist you. As stated in the University Manual: "The student with a disability shall be responsible for self-identification to the Disability Services for Students in the Office of Student Life, providing appropriate documentation of disability, requesting accommodation in a timely manner, and follow-through regarding accommodations requested." In other words, it is your responsibility to make arrangements for any special needs and my responsibility to accommodate them with the assistance of the office of [Disability Services for Students.](#)

PHILOSOPHY OF TEACHING/LEARNING: We look forward to lively debate, difference of opinion, shared experience, willing acknowledgment of what one does not know – faculty included, and a passion for learning. We expect that we will all engage in debate with respect for differing opinions. We will also provide ongoing critiques of your work and will offer them in the spirit of constructive criticism. We strongly urge you to evaluate any critique you receive as objectively as possible. This is critical preparation

for the world of peer reviewed work as well as the interaction you will have with public entities, e.g., NGO's, elected officials, the media, etc. We faculty will not always agree when we provide critiques; you will need to sort through the opposing comments and determine their value. Do not hesitate to contact any of us if you find a bit of commentary confusing but do make an effort to decode it with the person who wrote the criticism. Through the varied layers of faculty and peer criticism, you will learn to sort through qualitative and quantitative data to determine their value and applicability. In Fall 2005, we launched this "lively experiment" – an homage to Rhode Island's history of innovation and open-minded discovery. We expect this year's experience to be even richer with the added value of a seasoned 2005 cohort and the fresh perspective of the 2006 cohort.

You might find the following useful:

[Speaking Anxiety: A Primer on Alleviating the Horrors of Public Address](#)

[PowerPoint: Advice on the Design of PowerPoint Presentations](#)

[Writing Tips: A Guide to Avoiding the Most Common Errors
or How to Write Good](#)

[Brainstorming: A Process to Release Suppressed Creativity](#)