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Overview of the Course
This course will provide interdisciplinary study of the world’s oceans and coasts as we consider the challenge of maintaining their health and vitality in the face of multiple environmental threats, including climate change, pollution, over-fishing, and habitat disturbance. Specific environmental challenges will be covered in lecture and readings to provide an understanding of underlying scientific, social and economic issues, and current policy-related developments. During the final component of the course we will discuss and analyze recent efforts towards providing an integrated policy response, such as ecosystem-based management and marine spatial planning.

Goals/Learning Outcomes for the Course:

- Students will demonstrate the ability to identify and describe the (1) environmental problems facing the oceans and (2) policy responses to those problems by successfully completing mid-term and final exams covering these subjects.

- Students will demonstrate the ability to analyze and evaluate policy decisions from specific stakeholder perspectives by writing an opinion piece on an ocean policy issue.
• Students will demonstrate the ability to synthesize and summarize an original research article or government panel report and present an oral presentation on this summary

• Students will demonstrate the ability to formulate an integrated and interdisciplinary response to current ocean management issues by completing an individual report and group presentation on marine spatial planning for an assigned region.

Course Materials:

*Secretariat of the Convention on Biological Diversity (CBD), 2012. Impacts of Marine Debris on Biodiversity: Current Status and Potential Solutions. CBD Technical Series No. 67


*Available on ELMS-Canvas Files Section

Evaluation and Grading Criteria

A total of 100 points is possible from four cumulative sources; (a) Mid-term test 25%; (b) Final examination 25%; (c) Article Summary Presentation 15%; (d) Written Assignment 10%; (e) Final Integrated Assignment Group Project 15%; and (f) Reading Quizzes 10%.

Grades will be determined based on the following distribution: 100-98% = A+, 97-92 = A, 91-90 = A-; 89-88 = B+, 87-80 = B, 81-80 = B-; 79-78 = C+, 77-72 = C, 71-70 = C-; 69-68 = D+, 67-62 = D, 61-60 = D-; ≤ 59 = F.

Course Reading and Reading Quizzes

Assigned reading materials are listed in the Schedule of Readings and Assignments below. Students are expected to read course material for each week prior to each Wednesday’s lecture. Several reading quizzes will be given in the beginning of class on selected Wednesdays, and will consist of multiple-choice questions on the assigned reading for that week.

Course Policies

Late Policy

Unless you see me in advance of the due date and obtain an approved excuse, 5 percent of the total possible points will be deducted from your score for every day the assignment is late, including weekend days. (So, for example, on a 100-point scale, a student who would have earned a 94 on a timely paper will earn 89 if the same paper is turned in one date late, 84 if turned in 2 days late, etc.).
Attendance and Absences:
In accordance with University policy, students are expected to attend classes regularly and on-time. Attendance will not be taken on a regular basis, but failure to attend class is likely to impact your grade because the lecture materials will be a primary source of exam material.

An absence will only be considered excused under the circumstances described by the University’s attendance policy, available at:
http://www.umd.edu/catalog/index.cfm/show/content.section/c/27/ss/1584/s/1540.

Academic Accommodations:
If you have a documented disability, please contact Disability Support Services 0126 Shoemaker Hall. Each semester students with documented disabilities should apply to DSS for accommodation request forms which you can provide to your instructors as proof of your eligibility for accommodations. The rules for eligibility and the types of accommodations a student may request can be reviewed on the DSS website at http://www.counseling.umd.edu/DSS. Please provide your documentation to me well in advance of any scheduled due dates or exams so that I can be sure that all of your accommodation needs are satisfied.

Religious Observances
The University System of Maryland policy provides that students should not be penalized because of observances of their religious beliefs. Students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the responsibility of the student to inform the instructor of any intended absences for religious observances in advance. Notice should be provided as soon as possible but no later than the end of the schedule adjustment (drop/add) period.

Code of Academic Integrity
Academic dishonesty (such as cheating on exams, plagiarism from the internet or other students, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents and forging signatures) is unacceptable and will result in referral to the Student Honor Council after which a determination of a violation will result in a failing grade in the course and a note on your transcript indicating a violation of the rules of academic integrity. The University’s Code of Academic Integrity sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student, you are responsible for upholding these standards for this course:

1. No cheating (“intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise”);
2. No fabrication (“intentional and unauthorized falsification or invention of any information or citation in an academic exercise”);
3. No facilitating academic dishonesty (“intentionally or knowingly helping or attempting to help another to violate any provision of this Code”);
4. No plagiarism (“intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise”).

For more information on the Code of Academic Integrity or the Student Honor Council, visit www.shc.umd.edu.

Copyright Protection for Class Materials
Commercial firms have been paying students to take notes and collect course materials, which are then copied and sold. Course materials that exist in a tangible medium, such as written or recorded lectures,
Power Point presentations, handouts and tests, are copyright protected. Students **may not** copy and distribute such materials except for personal use and with the instructor's permission.

**Course Evaluation**

Your participation in the evaluation of courses through CourseEvalUM is a responsibility you hold as a student member of our academic community. Your feedback is confidential and important to the improvement of teaching and learning at the University. By completing all of your evaluations each semester, you will have the privilege of accessing online, at Testudo, the evaluation reports for the thousands of courses online at Testudo. Evaluations can be completed at [www.coursesevalum.umd.edu](http://www.coursesevalum.umd.edu).
Schedule of Readings and Assignments:

Part I: Environmental Threats to Oceans and Coasts: Climate Change and Pollution

Week 1 January 26/28. Introduction/Marine and Coastal Processes
   Reading: Noone, Chapter 1

Week 2 February 2/4. Climate Change: Ocean Acidification and Ocean Warming
   Reading: Noone, Chapters 2-3
   Due February 2: Presentation topic/article choice survey due.

Week 3 February 9/11. Coastal Pollution: Agriculture, Municipal and Stormwater Runoff
   Reading: Noone, Chapter 4

Week 4 February 16/18. Coastal Pollution: Energy, Industry, and Military
   Reading: Noone, Chapter 6


Week 6 March 2/4. Ocean Pollution: Marine Debris and Ocean Dumping
   Reading: CBD, 2012 p.11-38
   Final Integrated Assessment Groups Assigned

Week 7 March 9/11. Mid-term Review and Mid-term Examination
   March 11: Draft Op/Ed articles returned with red-line comments

Part II: Environmental Threats to Oceans and Coasts: Over-Fishing and Habitat Disturbance

Week 8 March 23/25. Over-Fishing and Fisheries Management
   Reading: Noone, Chapter 7

Week 9 March 30/April 1. Case Study: Collapse of the Atlantic Cod Fishery, Grand Banks, Newfoundland
   Due April 1: Final Op/Ed Article

Week 10 April 6/8. Introduction of Non-native species
   Reading: Buck, 2012.

Week 11 April 13/15. Habitat disturbance and destruction, Freshwater production, and Marine aquaculture
   Reading: Noone, Chapter 5
Week 12 April 20/22. Impacts of Multiple Stressors
   Reading: Noone, Chapters 8, 11
   Final Integrated Assignment Group Meetings

Part III. Towards on Integrated Policy Response

Week 13 April 27/29. Coastal and Marine Spatial Planning
   Reading: Noone Chapter 12; Ocean Policy Task Force, 2010

Week 14 May 4/6. Marine Spatial Planning – Group Presentations

Week 15 May 11. Final Examination Review
Course Assignment: Journal Article Summary Presentation

Each student will prepare a 10-min presentation on a recent original research article (in the fields of marine biology, oceanography, marine policy, or topically-related social science). Student presentations will be given during corresponding course lectures, and students will work with the instructor to prepare their presentation prior to lecture. A list of potential articles for students to choose from for each lecture is included as Attachment A at the end of the syllabus. Alternatively, students may find an article on their own (published 2012 to present); however, all articles must be approved by the instructor. Presentations should be prepared as MS-PowerPoint files, including notes and all references. Students must also provide two short-answer exam-type questions related to their summary.

Article summaries should include discussion of the research objective(s), necessary background (which may require the student to perform research separate from the article itself), methods, results, and consistency/inconsistency of the results with prior work on the subject (as discussed within the paper). PowerPoint files should be between 8 to 10 slides in length, including title slide. Slides themselves should not include an abundance of text, and should consist primarily of the graphics and/or tables presented within the article and necessary background material (e.g., maps of study location). The student should include talking points within the PowerPoint ‘notes’ section.

Schedule and Due Dates

Students must provide two article and topic choices by Monday February 2 by completing the survey on ELMS (under “Quizzes”). Student presentations will be given on Wednesdays of each week for the corresponding lecture material topic. Students will review a draft of the presentation with the instructor on the Monday or Tuesday prior to their presentation; students are responsible for scheduling an appointment to review the draft presentation. PowerPoint Slides are due with the PDF of original article to the instructor prior to class on the day of the presentation.

Grading Rubric

<table>
<thead>
<tr>
<th>ENSP 342 Student Article/Report Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Article/topic choice survey (10)</strong></td>
</tr>
<tr>
<td><strong>Draft presentation prepared and reviewed with instructor (20)</strong></td>
</tr>
<tr>
<td><strong>Final presentation – slides (30)</strong></td>
</tr>
<tr>
<td><strong>Final oral presentation (30)</strong></td>
</tr>
<tr>
<td><strong>Exam Questions (10)</strong></td>
</tr>
</tbody>
</table>

Total Possible Points: 100
Course Assignment: Op/Ed Article

For this assignment, you will write an opinion piece on a newsworthy topic related to one of the course lecture topics for a national or international news outlet. An op-ed is an opportunity for you to influence a wide audience by providing your thoughts on a recent issue. You should not just describe the topic you choose—you should be weighing in. For example, you might endorse a plan of action, affirm a viewpoint that has been reflected in the news, point out why a relevant policy option is misguided and suggest an alternative, add a new consideration to an ongoing debate, try to persuade an opposing audience, and so forth. The article should be about 750 words; 1-2 single-spaced pages.

Writing guidelines

- Avoid jargon. Op-eds are typically intended for an educated, non-specialist audience, so strive for writing that is polished and clear, but not overly technical.
- Let your voice shine through. Most op-eds have a conversational tone. Feel free to use first person.
- Focus on no more than one, possibly two, main arguments. Don’t try to fit all your thoughts on marine policy into this short piece. Before you start writing, list the one or two arguments that you want to make, then focus on making these arguments clearly and persuasively.
- Make a news hook. In the very start of your piece, make a connection to a timely news event.
- Put your main point up front. You want readers to understand your main point quickly. You need to draw in a reader and convince them to keep reading within the first paragraph.
- Write in short paragraphs.
- Use references sparingly as hyperlinks. Op-eds usually have no more than about 5 references. For this assignment, use 2-5 sources for the facts and figures you need to support your argument. But don’t use a traditional citation format. Just place the link to the relevant source as a hyperlink in your sentence. (e.g., “Earlier this summer, scientists predicted formation of a record-breaking dead zone in the Gulf of Mexico.”)

Samples

The best way to get a sense of how to write a great op-ed is by reading those that have been written in publications like the New York Times, Washington Post, and Wall Street Journal. You can browse the opinion or editorial pages on these websites. Below are a few samples to get you started:

http://online.wsj.com/news/articles/SB10001424052702303657404576357620250781498
http://online.wsj.com/news/articles/SB10001424052970204422404576594872796327348

Schedule and Due Dates:

Draft articles are due in MS-Word format by **February 25**. Draft articles are expected to be complete and consistent with instructions listed above. The instructor will provide red-line comments on the draft article by March 11. The final version of the article with revisions based on instructor feedback is due **April 1**.
<table>
<thead>
<tr>
<th>Grading Rubric</th>
<th>ENSP 342 Op/Ed Written Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Draft article – Content and Relevance (20)</strong></td>
<td>Demonstrates an in-depth understanding of the issue and provides valid and/or reasonable opinions (20)</td>
</tr>
<tr>
<td><strong>Draft article – Format and Organization (20)</strong></td>
<td>Paper follows the format of the assignment and includes all parts (20)</td>
</tr>
<tr>
<td><strong>Final article – Content and Relevance (20)</strong></td>
<td>Demonstrates an in-depth understanding of the issue and provides valid and/or reasonable opinions (20)</td>
</tr>
<tr>
<td><strong>Final article – Format and Organization (20)</strong></td>
<td>Paper follows the format of the assignment and includes all parts (20)</td>
</tr>
<tr>
<td><strong>Final article - Writing Quality/Grammar (20)</strong></td>
<td>Paper is well written and free from errors in grammar, spelling, and word usage. (20)</td>
</tr>
</tbody>
</table>

**Total Possible Points: 100**
**Course Assignment: Final Integrated Assignment**

For the final assignment, students will be divided into nine teams (3-4 students per group) to represent the nine regional planning areas established in President Obama’s National Ocean Policy. Students will be asked to assume that they are reporting to President Obama on the status of marine spatial planning in their region and any impediments to progress. Students will meet with their group to give a 15-20 minute presentation to the class.

**Background**

In July of 2010, President Obama signed an Executive Order adopting the recommendations of the Ocean Policy Task Force. In the order, he called for “the development of coastal and marine spatial plans that build upon and improve existing Federal, State, tribal, local, and regional decision-making and planning processes.” (July 19, 2010 Executive Order, at 1) Coastal and Marine Spatial Planning (CMSP) is defined as “a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas.” (Final Recommendations of the Interagency Ocean Policy Task Force, July 19, 2010, at 41). The Recommendations divided the United States into nine regional planning areas for development and implementation of CMSP.

**Assignment**

You are a staffer to the National Ocean Council. The President has asked you to prepare a presentation on the status of CMSP in your assigned Regional Planning Area. He is particularly interested in the following information:

1. What is the organizational structure within the regional planning area for CMSP?
2. What is the current status of CMSP in this regional planning area? Be specific and describe what planning is occurring or what is in the works.
3. Are there any impediments to progress on CMSP in this regional planning area? For example, are there any groups who have expressed opposition? Are there any funding or legal constraints?
4. Is CMSP progressing in this region as envisioned in the Recommendations and Implementation plan? Why or why not?
5. What is your recommendation for keeping planning on track if it is on track, or getting it on track if it is not?

You will work with your group member(s) to develop a 15 minute presentation. You should assume that you are presenting this information directly to President Obama. You may use PowerPoint slides if you wish, but you are not required to do so. You should decide how to best communicate this information to the President. All group members will receive the same presentation grade.

**Resources**

This website provides links to both the 2010 Recommendations and the 2013 Implementation Plan, [http://www.whitehouse.gov/administration/eop/oceans/marine-planning](http://www.whitehouse.gov/administration/eop/oceans/marine-planning)

This NOAA website provides background information on CMSP: [http://cmsp.noaa.gov/index.html](http://cmsp.noaa.gov/index.html)
This BOEM website provides background information on CMSP:

You should rely primarily on government websites and publications for this assignment. In fact, they will most likely be the best source of information. Be sure that all information from websites that you use is accurate, reputable, and up-to-date.

**Due Dates and Schedule**
The course instructor will randomly assign groups, and group member lists will be distributed by March 2. All teams will schedule an out-of-class meeting with the instructor during the week of April 20 to go over the presentation and answer any questions (a majority of group members must be in attendance). Presentations will be given during class on May 4 and May 6.

**Grading Rubric**

<table>
<thead>
<tr>
<th>ENSP 342 Final Integrated Assignment Presentations</th>
<th>Preliminary Meeting 10 points</th>
<th>Organization 40 points</th>
<th>Knowledge of Presenters 40 points</th>
<th>Speaking Skills/Presentation 10 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students demonstrate knowledge of presentation material and preparation (10)</td>
<td>Students demonstrate some preparation (8)</td>
<td>Students demonstrate only cursory preparation (6)</td>
<td>Students display no significant preparation (4)</td>
<td></td>
</tr>
<tr>
<td>Presentation is sequential, logical, effectively conveys the meaning and purpose to the audience, and follows the outline in the assignment (40)</td>
<td>Presentation is sequential, logical, audience generally understands the purpose, and mostly follows the outline in the assignment (32)</td>
<td>Presentation may not be sequential or logical and/or does not include all elements included on the outline in the assignment (24)</td>
<td>Presentation is not sequential or logical, may be hard for the audience to understand the purpose, does not follow the outline in the assignment (16)</td>
<td></td>
</tr>
<tr>
<td>Presenters demonstrate an in-depth understanding of the content and provide valid and/or reasonable recommendations (40)</td>
<td>Presenters demonstrate a firm grasp of the content and generalize reasonable recommendations (32)</td>
<td>Presenters show a basic understanding of the content but do not develop reasonable recommendations (24)</td>
<td>Presenters do not have a basic understanding of the content and do not develop reasonable conclusions (16)</td>
<td></td>
</tr>
<tr>
<td>Presenter/s engage the audience, speak clearly, make frequent eye contact and do not read from slides or notes (10)</td>
<td>Presenter/s engage the audience, speak clearly, makes eye contact often, but rely on slides or notes (8)</td>
<td>Presenter/s do not engage the audience or speak in a low voice and read from slides or directly from notes (6)</td>
<td>Presenter/s do not engage the audience, do not speak clearly and read directly from slides or notes (4)</td>
<td></td>
</tr>
</tbody>
</table>

**Total 100 points possible**
Attachment A: Possible Articles/Reports for Summaries

Week 2, February 2/4. Climate Change: Ocean Acidification and Ocean Warming


M. Dolores Basallote, Manoela R. De Orte, T. Ángel DelValls, and Inmaculada Riba. Studying the Effect of CO2-Induced Acidification on Sediment Toxicity Using Acute Amphipod Toxicity Test Environmental Science & Technology 2014 48 (15), 8864-8872

Week 3, February 9/11. Coastal Pollution: Agriculture, Municipal and Stormwater Runoff


Week 4. Coastal Pollution: Energy, Industry and Military


Lara Wever, Gesche Krause, Bela H. Buck, Lessons from stakeholder dialogues on marine aquaculture in offshore wind farms: Perceived potentials, constraints and research gaps, Marine Policy, Volume 51, January 2015, Pages 251-259


Michael Lodge, David Johnson, Gwenaëlle Le Gurun, Markus Wengler, Phil Weaver, Vikki Gunn, Seabed mining: International Seabed Authority environmental management plan for the Clarion–Clipperton Zone. A partnership approach, Marine Policy, Volume 49, November 2014, Pages 66-72

Week 6. Ocean Pollution: Marine Debris and Ocean Dumping

Jongmyoung Lee, Sunwook Hong, Yong Chang Jang, Mi Jeong Lee, Daeseok Kang, Won Joon Shim, Finding solutions for the styrofoam buoy debris problem through participatory workshops, Marine Policy, Volume 51, January 2015, Pages 182-189

Sang-Goo Kim, Won-IL Lee, Moon Yuseok, The estimation of derelict fishing gear in the coastal waters of South Korea: Trap and gill-net fisheries, Marine Policy, Volume 46, May 2014, Pages 119-122

Emily Hastings, Tavis Potts, Marine litter: Progress in developing an integrated policy approach in Scotland, Marine Policy, Volume 42, November 2013, Pages 49-55


Week 8. Over-Fishing and Fisheries Management.


Kate Brooks, Jacki Schirmer, Sean Pascoe, Lianos Triantafillos, Eddie Jebreen, Toni Cannard, Cathy M. Dichmont, Selecting and assessing social objectives for Australian fisheries management, Marine Policy, Volume 53, March 2015, Pages 111-122

Cristina Silva, Hugo Mendes, Mafalda Rangel, Laura Wise, Karim Erzini, Maria de Fátima Borges, Marta Ballesteros, Jose Luis Santiago, Aida Campos, Jonas Viðarsson, Kâre N. Nielsen, Development of a responsive fisheries management system for the Portuguese crustacean bottom trawl fishery: Lessons learnt, Marine Policy, Volume 52, February 2015, Pages 19-25


**Week 9. Case Study: Collapse of the Atlantic Cod Fishery, Grand Banks, Newfoundland**

Paul Foley, Charles Mather, Barbara Neis, Governing enclosure for coastal communities: Social embeddedness in a Canadian shrimp fishery, Marine Policy, Available online 5 January 2015

Andrew Butterworth, Mary Richardson, A review of animal welfare implications of the Canadian commercial seal hunt, Marine Policy, Volume 38, March 2013, Pages 457-469

Kate Barley Kincaid, George A. Rose, Why fishers want a closed area in their fishing grounds: Exploring perceptions and attitudes to sustainable fisheries and conservation 10 years post closure in Labrador, Canada, Marine Policy, Volume 46, May 2014, Pages 84-90


**Week 10. Introduction of Non-native species**


Loren McClanachan, Grace O’Connor, Travis Reynolds, Adaptive capacity of co-management systems in the face of environmental change: The soft-shell clam fishery and invasive green crabs in Maine, Marine Policy, Volume 52, February 2015, Pages 26-32

Maiju Lehtiniemi, Henn Ojaveer, Matej David, Bella Galil, Stephan Gollasch, Cynthia McKenzie, Dan Minchin, Anna Occhipinti-Ambrogi, Sergej Olenin, Judith Pederson, Dose of truth—Monitoring marine non-indigenous species to serve legislative requirements, Marine Policy, Volume 54, April 2015, Pages 26-35

Mary Catherine Gallagher, John Davenport, Susan Gregory, Rob McAllen, Ruth O'Riordan, The invasive barnacle species, Austrominius modestus: Its status and competition with indigenous barnacles on the Isle of Cumbrae, Scotland, Estuarine, Coastal and Shelf Science, Volume 152, 5 January 2015, Pages 134-141

15
Gorka Bidegain, Javier Francisco Bárcena, Andrés García, José Antonio Juanes, Predicting coexistence and predominance patterns between the introduced Manila clam (Ruditapes philippinarum) and the European native clam (Ruditapes decussatus), Estuarine, Coastal and Shelf Science, Volume 152, 5 January 2015, Pages 162-172

D. Brickman, Could ocean currents be responsible for the west to east spread of aquatic invasive species in Maritime Canadian waters?, Marine Pollution Bulletin, Volume 85, Issue 1, 15 August 2014, Pages 235-243

**Week 11. Coastal habitat disturbance and destruction, Freshwater production, and Marine aquaculture**

Michael Bradley, Ingrid van Putten, Marcus Sheaves, The pace and progress of adaptation: Marine climate change preparedness in Australia’s coastal communities, Marine Policy, Volume 53, March 2015, Pages 13-20


Ta-Kang Liu, Jui-Chuang Kao, Ping Chen, Tragedy of the unwanted commons: Governing the marine debris in Taiwan’s oyster farming, Marine Policy, Volume 53, March 2015, Pages 123-130

Robert R. Lane, Haosheng Huang, John W. Day, Dubravko Justic, Ronald D. DeLaune, Water quality of a coastal Louisiana swamp and how dredging is undermining restoration efforts, Estuarine, Coastal and Shelf Science, Volume 152, 5 January 2015, Pages 23-32

Stefanie Nolte, Peter Esselink, Jan P. Bakker, Christian Smit, Effects of livestock species and stocking density on accretion rates in grazed salt marshes, Estuarine, Coastal and Shelf Science, Volume 152, 5 January 2015, Pages 109-115

Guan Dong Gao, Xiao Hua Wang, Xian Wen Bao, Land reclamation and its impact on tidal dynamics in Jiaozhou Bay, Qingdao, China, Estuarine, Coastal and Shelf Science, Volume 151, 5 December 2014, Pages 285-294

**Week 12. Impacts of Multiple Stressors**


Jian-Ze Chen, Shiang-Lin Huang, Yu-San Han, Impact of long-term habitat loss on the Japanese eel Anguilla japonica, Estuarine, Coastal and Shelf Science, Volume 151, 5 December 2014, Pages 361-369