Course Syllabus, Adaptation to Climate Change AS.425.638

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Section 1

Instructor, Course Information & Objectives

Advanced Academic Programs
Zanvyl Krieger School of Arts and Sciences
Johns Hopkins University

Adaptation to Climate Change AS.425.638

Instructor Information
Instructor: Thomas D. Peterson
Telephone Number: (703) 887-6696
Email Address: tpeter17@JHU.edu
Office Hours: Available by phone appointment and email Monday through Friday between 1-6 pm Eastern Time, and on Saturdays and Sundays between 1 and 3 pm Eastern Time.

Course Description
Global climate change risks are increasingly complex and may ultimately affect virtually every facet of our economic, energy, community, and environmental systems. At the same time, policy and investment responses to climate resiliency needs are similarly complex, controversial, and high stakes. Perhaps no issue facing leaders of today and tomorrow is more cross-cutting in nature or in greater need of improved understanding and capability than climate change risk. This course will provide a comprehensive framework for understanding, assessing, and applying climate change risk, vulnerability, a hazard assessment for the development of risk reduction and adaptation response. In the process, it will examine the status, limitations, and strengths of current assessment and action planning approaches across varying sectors, scales, and impact areas. The course will also include a review of methods prioritizing actions and addressing feasibility, flexibility, and logistical needs as applied to specific facilities, such as military installations, as well broader communities and multi-state regions. Individual and group learning exercises will be involved. Offered on-site at least once every two years.

Prerequisites are not required. However, students will be expected to learn and apply basic concepts and practices used in climate action planning and assessment that involve various aspects of science, economics, mathematics, law, and decision making. Students may want to arrange additional learning support or resources in these areas in some cases.

Course Goals & Learning Objectives
Students will learn important skills and concepts that enable effective evaluation and decision making on climate change adaptation issues, including:

- Discuss cause and effect relationships that drive climate change at the atmospheric and earth levels
- Identify specific drivers of climate change risk within sectors and regions
- Design and conduct adaptation planning and analysis processes that are systematic and...
strategic

- Develop risk and vulnerability baselines and response action scenarios
- Translate risk to vulnerability by assessing adaptive capacity
- Prioritize risk, vulnerability, and response actions to meet targeted planning objectives
- Identify and design response options in sectors for successful implementation
- Integrate climate adaption with other critical objectives
- Conduct expert review and critique of adaptation assessments, policies, and plans
- Advise leaders on how to understand and act on climate change resilience

Section 2

Course Materials

Textbooks

Required: All required materials will be available through online download.

1. IPCC AR5: Working Group I, The Physical Science Basis
2. IPCC AR5: Working Group 2, Impacts, Adaptation, and Vulnerability
4. IPCC, Managing the Effects of Extreme Events and Disasters to Advance Climate Change Adaptation, 2012
5. Center for Climate Strategies (CCS), Adaptation Guidebook Comprehensive Climate Action. CCS, 2011 (hard copy provided)

Optional: You will need to purchase the optional text if you wish to have it.


Other Readings

Additional readings will be assigned each week and they will be updated as needed during the course depending on class needs and current events.

Other equipment/software/websites/online resources

As needed, other tools will be made available during the course as noted in the weekly lessons.

Specific Technology Requirements & Skills for this Course

Students will need access to desktop and or laptop computers with word processing, spreadsheets, and presentation software (using Microsoft Office or Apple iWork software), as well as internet access to JHU portal websites and other websites in order to access learning materials. Students also will need access to online dialog platforms such as Adobe Connect and Skype, as well as telephone access to conference lines for group interactions.

Learning online requires some basic knowledge of computer technology. At a minimum, you need to be able to:

- Navigate in and use Blackboard; the Blackboard Student Orientation course on your "My Institution" page
Section 3

About Your Course

Course Topics

Week #, Topic
1 Overview of class, atmospheric and earth level climate change science
2 Linkage of climate change drivers, risks, vulnerabilities, and responses
3 Sector: Water Resources, including marine and inland
4 Sectors: Agriculture and Forests
5 Sectors: Ecosystems, Wildlife, and Fisheries
6 Sector: Energy and Transportation
7 Sectors: Residential, Commercial, Industrial, and Institutional Sectors – also known as buildings, facilities, and infrastructure
8 Sectors: Health
9 Sectors: Security
10 Planning and Analysis of Adaptation Actions
11 Adaptation Decision Making: prioritization of risks, vulnerabilities, and responses
12 Design, Analysis, and Implementation of Adaptation Actions
13 Regions of North America, Europe, and Polar Regions
14 Regions of Asia, Africa and Australia
15 Regions of Central and South America, Small Islands

Directions for Students

Next Steps: Carefully review the remaining sections of the syllabus before beginning the Week 1 activities, which are located in the Lessons folder in your online course.

- Once you feel that you are ready to dive into the first week’s activities, click on the Lessons button on the left-side navigation menu. Then, click on Week 1 to begin with the Introduction and Objectives.

What To Expect in this Course

This course is 15 weeks in length and includes individual, group, and whole group activities in a weekly cycle of instruction. Each week begins on a Sunday and ends on the following Saturday (except for Week 1 which begins on a Monday). Please review the course syllabus thoroughly to learn about specific course outcomes and requirements.

For this course, there may be strongly recommended synchronous events using one or more collaboration tools. These include online or face-to-face, and will be listed in lesson plans.
Each week, you will complete readings that may include videos, multimedia presentations, web-based resources, chapter texts, and articles from professional journals. A reading may be integrated within an activity during the week or provide some key information to assist your learning.

In this course, you will also experience online learning activities, which include discussion boards, synchronous sessions, group work, the use of Web 2.0 tools, and online multimedia presentations.

Be sure to refer to the Checklist each week, which provides a week-at-a-glance and shows targeted dates for the completion of activities.

Course Structure
The course is structured to provide upfront learning of concepts, theories, knowledge, and practices followed by learning by doing through individual and group activities and assignments. The applied learning activities are designed to build upon up front learning and expand student appreciation for its content, as well as expanding student’s abilities to synthesize this learning into applied decisions. As we do so, the course will help students grapple with two major characteristics of climate change adaptation: 1) the list of all potential climate change risks and vulnerabilities is vast and represents an enormous learning curve to fully master; and 2) applied climate adaptation decision making requires a process for screening and prioritization of comprehensive risks, vulnerabilities, response actions in order to be manageable and targeted. Students will learn the structure of comprehensive risk, vulnerability, and response action as well as its unique characteristics within sectors and regions. Students also will learn how to apply multi objective decision making to manage the translation of climate science to policy.

Section 4
Assessments and Grading Policy

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Due Dates</th>
<th>Points Possible</th>
<th>Final Grade Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1: Assessment and Planning and Analysis Framework</td>
<td>Week 8</td>
<td>100</td>
<td>25%</td>
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</tbody>
</table>

Assignment #1 requires you to develop a comprehensive, systematic, assessment and decision making framework (outline format) in five pages or less for a sector (such as water, to be assigned) that identifies a full suite of climate change drivers for the sector, with key risks, vulnerabilities, and adaptive capacities for subsectors and sample baseline metrics for each. Content over five pages will not be considered (page six and thereafter).
Assignment 2: Adaptation Planning Process Design

**Assignment #2** requires you to develop a bulleted outline in five pages or less of a generic, comprehensive, stepwise process for adaptation planning and assessment for a region. This will include technical steps needed to set overall goals and objectives, a scope and rationale for coverage for sectors, identification of baseline (risk and vulnerability) metrics and trends for sectors, identification of key priority risks and vulnerabilities within sectors, and identification of a range of key targeted potential adaptation responses.

<table>
<thead>
<tr>
<th>Assignment 3: Regional Assessment and Response</th>
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<tbody>
<tr>
<td><strong>Assignment #3</strong> requires you to review the general characteristics of a region that are related to climate change adaptation and describe in a memo of eight pages or less 1) the most important climate change impact and other key goal related trends for a specific region (e.g. sustainable economic development); 2) key goals and objectives for response actions that can result in meaningful improvements in this region over time; 3) a set of the most critical conditions needed for success of further assessments and new response actions in this region; 4) general steps needed to accomplish a plan for regional adaptation action implementation that are customized to needs based on its unique features; and 5) desired and expected outcomes from response actions across goal areas that are realistic and progressive in light of present and future field conditions.</td>
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<table>
<thead>
<tr>
<th>Course Engagement</th>
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<tbody>
<tr>
<td><strong>Course Engagement</strong> requires you to have an active presence in course discussions, and complete course activities as noted in the assignment guidelines to maximize your learning. Participation in activities should be consistent, of high quality, and reflect both a high level of academic thinking and your own personal perspectives, opinion, and ideas. Quizzes and other learning exercises will be included in the assessment of Course Engagement.</td>
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<table>
<thead>
<tr>
<th>Total</th>
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<tbody>
<tr>
<td>100%</td>
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</table>
Grading

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A+</td>
<td>98% to 100%</td>
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<tr>
<td>A</td>
<td>94% and less than 98%</td>
</tr>
<tr>
<td>A-</td>
<td>90% and less than 94%</td>
</tr>
<tr>
<td>B+</td>
<td>88% and less than 90%</td>
</tr>
<tr>
<td>B</td>
<td>84% and less than 88%</td>
</tr>
<tr>
<td>B-</td>
<td>80% and less than 84%</td>
</tr>
<tr>
<td>C</td>
<td>70% and less than 80%</td>
</tr>
<tr>
<td>F</td>
<td>0% and less than 70%</td>
</tr>
</tbody>
</table>

Assignment Guidelines

How should assignments be submitted?
Assignments should be submitted as files using the Blackboard assignment and submission links found within the weekly lessons. Appropriate software (word processing, spreadsheets, presentations) should be used and files should be labeled with date, name, and subject as follows:
01_11_17_Peterson_JHUAdaptationAssignment1.

When will assignments be due?
Assignments are due by the specified times, time zones, and dates (e.g. 11:59 pm Eastern Time on September 29, 2017) found within the weekly lessons.

When will completed assignments be returned?
The instructor will aim to return assignments to you within 5-7 days following the due date, depending on the length of the assignment. You will receive feedback under the My Grades link in the course navigation menu.

What is the policy for late assignments?
You are expected to contact your instructor in advance if you think you cannot meet an assignment deadline. However, if an assignment is late and prior arrangements have not been made with the instructor, the assignment score will be one half grade reduced each day that the assignment is late.

What happens if I cannot participate in a synchronous session?
If you cannot attend a synchronous session, you will be responsible for watching the recording at a later time and as needed, providing a summary or other follow up action.
Time Management Expectations

What is the time demand and schedule of the course?

It is expected that you look ahead to schedule your time. Plan to complete coursework across several days of the week rather than all in one day. Be sure to consider how group activities impact your schedule as well.

Some assignments require that you work on them for multiple weeks. Be sure to review the assignment directions at the beginning of the course so that you can plan your time accordingly. Please seek help before becoming frustrated and spending a significant amount of time to resolve an issue.

Section 5

Course Participation & Communication Policy

Participation

What are the participation requirements?

You are expected to log into Blackboard at least three times a week, though a daily check-in is recommended. It is your responsibility to read all announcements and discussion postings within your assigned forums. You should revisit the discussion multiple times over the week to contribute to the dialogue.

What are the requirements for working in groups?

You are expected to work equitably within your group to complete collaborative group activities. At different points in the course, you will have an opportunity to privately rate your own participation and that of your group-mates.

Please refer to the "Course Engagement" section of the "Assignment Guidelines" area of your course for more specific information about individual and group participation in this course.

Network Etiquette (i.e. “Netiquette”)

In this course, online discussion will be primarily take place in our online discussion board. In all textual online communication it's important to follow proper rules of netiquette.

What is netiquette? Simply stated, it's network etiquette -- that is, the etiquette of cyberspace. And "etiquette" means the social and cultural norms of communicating with others in a proper and respectful way. In other words, netiquette is a set of rules for behaving and interacting properly online.

The Netiquette “Core Rules” linked below are a set of general guidelines for cyberspace behavior. They probably won't cover all situations, but they should give you some basic principles to use in communicating online.
For Netiquette Core Rules visit The Core Rules of Netiquette web page.

Contacting the Instructor

The instructor for this course is Tom Peterson, tpeter17@jhu.edu, 703-887-6696. The instructor is available by phone appointment and email Monday through Friday between 1-6 pm Eastern Time, and on Saturdays and Sundays between 1 and 3 pm, Eastern Time.
Feel free to contact your instructor with comments, questions, and concerns. You will receive a response within 24-48 hours. In case of emergency please email, call, and text the professor.
Due to international travel, one or more methods may not be operational. Calls are normally the most likely to work if other methods do not.

Section 6

Course Protocols

How will I know about changes to the course?
Frequently, you will find new announcements posted in the Announcements, which contain information about current course activities that you are working on and any changes to the course. Please check announcements every time that you log into your online course.

How should I communicate with others in this course?
You should communicate often with your classmates and with your instructor. The majority of communication will take place within the Discussion forums. When you have a question about an assignment or a question about the course, please contact your instructor, or post your question in the course’s “Syllabus & Assignment Question” forum.

Are there any requirements for sending e-mail messages?
When you send an e-mail message to the instructor or to another participant in the course, please observe the following guidelines:

- Include the title of the course in the subject field (e.g., JHU Climate Change Adaptation AS.425.638).
- Keep messages concise, and check spelling and grammar.
- Send longer messages as attachments.
- Sign your full name (the sender’s email is not always obvious).

Section 7

Course Topics, Activities & Schedule

Tentative Course Schedule
**Important Note:** Activity and assignment details will be explained in detail within each week's corresponding learning module. If you have any questions, please contact your instructor.

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates (week of)</th>
<th>Topics</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 28</td>
<td>Overviews of class, atmospheric and earth level climate change science, translation of science to policy.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>September 3</td>
<td>Linkage of climate change drivers, risks, vulnerabilities, and responses</td>
<td>Quiz</td>
</tr>
<tr>
<td>3</td>
<td>September 10</td>
<td>Sector: Water Resources, including marine and inland</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>September 17</td>
<td>Sectors: Agriculture and Forests</td>
<td>Assignment #1 Review</td>
</tr>
<tr>
<td>5</td>
<td>September 24</td>
<td>Sectors: Ecosystems, Wildlife, and Fisheries</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>October 1</td>
<td>Sector: Energy and Transportation</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>October 8</td>
<td>Sectors: Residential, Commercial, and Industrial (buildings, facilities, and infrastructure)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>October 15</td>
<td>Sectors: Human Health</td>
<td>Assignment #1 Due Assignment #2 Review</td>
</tr>
<tr>
<td>9</td>
<td>October 22</td>
<td>Sectors: National and Economic Security</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>October 29</td>
<td>Planning and Analysis of Adaptation Actions</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>November 5</td>
<td>Adaptation Decision Making: prioritization of risks, vulnerabilities, and responses</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>November 12</td>
<td>Analysis and Implementation of Adaptation Actions</td>
<td>Assignment #2 Due Assignment #3 Review</td>
</tr>
<tr>
<td></td>
<td>November 19</td>
<td>Thanksgiving Break</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>November 26</td>
<td>Regions: North America, Europe, and Polar Regions</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>December 3</td>
<td>Regions: Asia, Africa and Australia</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>December 10</td>
<td>Regions: Central and South America, Small Islands</td>
<td>Assignment #3 Due</td>
</tr>
</tbody>
</table>
Section 8

University Policies

General
This course adheres to all University policies described in the academic catalog. Please pay close attention to the following policies:

Students with Disabilities
Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students with documented disabilities should contact the coordinator listed on the Disability Accommodations page. Further information and a link to the Student Request for Accommodation form can also be found on the Disability Accommodations page.

Ethics & Plagiarism
JHU Ethics Statement: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor.

Read and adhere to JHU’s Notice on Plagiarism.

Dropping the Course
You are responsible for understanding the university’s policies and procedures regarding withdrawing from courses found in the current catalog. You should be aware of the current deadlines according to the Academic Calendar.

Getting Help
You have a variety of methods to get help. Please consult the help listed in the "Blackboard Help" link in the online classroom for important information. If you encounter technical difficulty in completing or submitting any online assessment, please immediately contact the designated help desk listed on the AAP online support page. Also, contact your instructor at the email address listed atop this syllabus.

Copyright Policy
All course material are the property of JHU and are to be used for the student's individual academic purpose only. Any dissemination, copying, reproducing, modification, displaying, or transmitting of any course material content for any other purpose is prohibited, will be considered misconduct under the JHU Copyright Compliance Policy, and may be cause for
disciplinary action. In addition, encouraging academic dishonesty or cheating by distributing information about course materials or assignments which would give an unfair advantage to others may violate AAP’s Code of Conduct and the University’s Student Conduct Code. Specifically, recordings, course materials, and lecture notes may not be exchanged or distributed for commercial purposes, for compensation, or for any purpose other than use by students enrolled in the class. Other distributions of such materials by students may be deemed to violate the above University policies and be subject to disciplinary action.

**Code of Conduct**
To better support all students, the Johns Hopkins University non-academic Student Conduct Code has been integrated and updated to include all divisions of the University. In addition, it is important to note that all AAP students are still accountable for the Code of Conduct for Advanced Academic Programs.

**Title IX**

**Confidentiality and Mandatory Reporting**
As an instructor, one of my responsibilities is to help create a safe and inclusive learning environment on our campus. I also have mandatory reporting responsibilities related to my role as a Responsible Employee under the Sexual Misconduct Policy & Procedures (which prohibits sexual harassment, sexual assault, relationship violence and stalking), as well as the General Anti-Harassment Policy (which prohibits all types of protected status based discrimination and harassment). It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share information that I learn of regarding sexual misconduct, as well as protected status based harassment and discrimination, with the Office of Institutional Equity (OIE). For a list of individuals/offices who can speak with you confidentially, please see Appendix B of the JHU Sexual Misconduct Policies and Laws.

For more information on both policies mentioned above, please see: JHU Relevant Policies, Codes, Statements and Principles. Please also note that certain faculty and other University community members also have a duty as a designated Campus Safety Authority under the Clery Act to notify campus security of certain crimes, as well as a duty under State law and University policy to report suspected child abuse and/or neglect.