# Course Syllabus, JHU Climate Change Adaptation 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
- Climate Change Adaptation 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 2-6 pm Eastern Time, and on Saturdays between 10 am and 1 pm Eastern Time.

**Course Description**

Global climate change risks and vulnerabilities are growing worldwide and affect potentially every facet of life. This is primarily due to the buildup of greenhouse gases in the atmosphere and its effects on global warming and subsequent changes to physical processes and structures on earth. While variable across time and place, climate change covers all regions of the world and virtually all types of human activity and environmental function. Its effects touch more people today than just a few years ago -- with more to come. Perhaps no issue facing leaders in the future will be more cross-cutting or challenging in terms of the scale of innovations and collective actions needed.

Many solutions to this growing problem exist through adaptation responses but finding and implementing the best solutions can be complex and require careful planning and analysis with little room for error. This course will provide foundational concepts, pathways, and evidence for the causes and effects of climate change and its earth level impacts. In addition, it will provide a comprehensive framework for understanding climate change risks, vulnerabilities, and response actions that may affect any location. Applied learning will include methods for analyzing specific climate change risks in sectors and translating them to key vulnerabilities and developing matching response actions and implementation mechanisms. The course will review case examples in each sector and region of the world and examine the strengths and limitations of current assessment and action planning approaches. Individual and group learning exercises will be involved.

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 causes and effects of climate change at the atmospheric and earth levels
- Identify specific drivers of climate change risk and vulnerability for sectors and regions
- Conduct adaptation planning and analysis processes that are systematic and strategic
- Develop and analyze risk and vulnerability baselines
- Translate risk to vulnerability by assessing adaptive capacity
- Identify and design targeted adaptation response actions within and across sectors
- Prioritize risk, vulnerability, and response actions to meet policy and planning objectives
- Integrate climate adaptation with priority goals for a jurisdiction
- Conduct expert review of adaptation assessments, policies, and plans
- Advise leaders on understanding and acting on climate change adaptation

Section 2

Course Materials

Textbooks

Required: All required materials are available through online download.

1. IPCC AR5: Working Group I, The Physical Science Basis
2. IPCC AR5: Working Group 2, Impacts, Adaptation, and Vulnerability
3. IPCC Special Report Global Warming of 1.5 C
4. Fourth National Climate Assessment, Volume II, Impacts, Risks, and Adaptation in the United States
5. IPCC, Managing the Effects of Extreme Events and Disasters to Advance Climate Change Adaptation, 2012
6. Other readings as assigned in weekly lessons.

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


Other Readings

Weekly readings will be assigned each week through blackboard, including required and optional readings from core materials above and additional materials. Readings and assignments 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, 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
- Create and save MS Word documents; see MS Word training and tutorials for PC users (all versions); Word Help for Mac users
- Find basic resources on the Internet
- Create and organize files & folders on your computer
- Send, receive, and manage email

Section 3

About Your Course

Course Topics

Week #, Topic

1. Overviews of Class, Global Effects of Climate Change
2. Water Resources
3. Agriculture and Forests
4. Ecosystems, Wildlife, and Fisheries
5. Energy and Transportation
6. Residential, Commercial, and Industrial
7. Human Health
8. National and Economic Security
- Spring Vacation
9. Comprehensive Planning of Adaptation Actions
10. Screening and Prioritization of Adaptation Vulnerabilities and Measures
11. Design and Analysis of Adaptation Measures
12. North America, Europe, and Polar Regions
13. Asia, Africa and Australia
14. 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 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 may 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 foundational 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 wide range of climate change risks and vulnerabilities; and 2) the need for screening and prioritization of risks, vulnerabilities, response actions in order to be manageable and targeted. Students will learn the framework 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
### Assignments

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Dates</th>
<th>Points Possible</th>
<th>Final Grade Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1: Planning and Analysis Framework</td>
<td>Week 6</td>
<td>100</td>
<td>25%</td>
</tr>
</tbody>
</table>

Assignment #1 requires you to develop a comprehensive framework of climate risks, vulnerabilities, and response actions for a sample sector pages (such as water, to be assigned) in a six-page table format that identifies examples of key risks, vulnerabilities, and adaptive capacities for a full set of subsectors with sample measurement metrics for each.

| Assignment 2: Risk and Vulnerability Assessment | Week 10 | 100 | 25% |

Assignment #2 requires you to describe and develop a risk and vulnerability assessment for a specific sector-based adaptation response action (to be assigned). This includes describing and demonstrating how you would evaluate its risk baselines, how you would determine its level of vulnerability (the level of adaptive capacity that exists under a BAU scenario), and how you would set up an analysis to determine if new actions can reduce vulnerability in comparison to baseline metrics. You should include your choices for the sources of data, key assumptions, and basic calculations that you will use and show your calculations in a manner that allows open review.

| Assignment 3: Adaptation Response Action Recommendation | Week 14 | 100 | 25% |

Assignment #3 requires you to describe and develop a procedure for the implementation design and analysis of a specific sector-based adaptation response action (in a sector to be assigned). This includes describing and demonstrating how you would evaluate its vulnerability and cost baseline, how you would determine its effectiveness at reducing vulnerability and achieving other objectives and the level of new costs or savings involved, and how you would implement the action through program mechanisms. You should include your choices for the sources of data, key assumptions, and basic calculations that you will use and show your calculations in a manner that allows open review.

| Course Engagement | All Weeks | 100 (each week) | 25% |

Course Engagement 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.

| Total | | | 100% |
Grading

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>98% to 100%</td>
</tr>
<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 communications 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 2-6 pm Eastern Time, and on Saturdays between 10 am and 1 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>January 23</td>
<td>Overviews of Class, Global Effects of Climate Change</td>
<td>Assignment #1 Review</td>
</tr>
<tr>
<td>2</td>
<td>January 30</td>
<td>Water Resources</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>February 6</td>
<td>Agriculture and Forests</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>February 13</td>
<td>Ecosystems, Wildlife, and Fisheries</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>February 20</td>
<td>Energy and Transportation</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>February 27</td>
<td>Residential, Commercial, and Industrial</td>
<td>Assignment #1 Due Feb 27 Assignment #2 Review</td>
</tr>
<tr>
<td>7</td>
<td>March 6</td>
<td>Human Health</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>March 13</td>
<td>National and Economic Security</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>March 20</td>
<td>Spring Vacation</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>March 27</td>
<td>Comprehensive Planning of Adaptation Actions</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>April 3</td>
<td>Screening and Prioritization of Adaptation Vulnerabilities and Measures</td>
<td>Assignment #2 Due April 10</td>
</tr>
<tr>
<td>11</td>
<td>April 10</td>
<td>Design and Analysis of Adaptation Measures</td>
<td>Assignment #3 Review</td>
</tr>
<tr>
<td>12</td>
<td>April 17</td>
<td>North America, Europe, and Polar Region</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>April 24</td>
<td>Asia, Africa and Australia</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>May 1</td>
<td>Central and South America, Small Islands</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>May 7</td>
<td>Final Assignment Due</td>
<td>Assignment #3 Due May 7</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.

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.