Climate Impacts on the Pacific Northwest

ATMS 585A / ENVIR 585A / ESS 585A / SMA 585A

Course Syllabus, Spring 2003

COURSE MEETINGS: Tuesday/Thursday, 9:30-11:30, Mary Gates Hall Room 254.

INSTRUCTORS:

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OFFICE HOURS: By appointment.
Our offices are on the second floor of the King Building, which is off campus at 4909 25th Avenue NE, right on the bike trail down by the U-Village. See http://jisao.washington.edu/address.html for a map.

COURSE WEB SITE: http://jisao.washington.edu/PNWimpacts/climateimpacts585a (note, this url is case sensitive!)

INTRODUCTION: This interdisciplinary course focuses on determining cases in which an understanding of the patterns and predictability of Pacific Northwest climate variations could be used to improve regional natural resource management. Students will develop an understanding of the causes and consequences of natural variations in regional climate (driven by such large-scale climate oscillations as El Niño/La Niña and the Pacific Decadal Oscillation) and projected trends resulting from global warming. We will study the importance of climate fluctuations for the region's natural resources as well as past societal reactions to climate forecasts, events and regional impacts. Focusing on PNW water, fish, forest, and coastal resources, we will examine the natural, economic, and institutional contexts in which regional resource management decisions are made. The ultimate objective of the course is to identify real-world opportunities where existing information about natural climate variability and human-caused global warming could improve regional resource management.

We will use the following core questions to guide our work throughout the quarter:

- What is the sensitivity of PNW natural resources to climate variability and change?
- What is the adaptability of PNW natural resources to climate variability and change?
    - What are the current challenges facing natural resource management?
    - Where might climate information improve natural resource management and planning?
    - What are the barriers to using climate information in management and planning and how might they be overcome? Consider barriers stemming from policies, scientific understanding of underlying processes, and/or inherent properties of the system.
- What is the vulnerability of PNW natural resources to climate variability and change?

COURSE GOALS: In this course, students will:

- Understand the multi-faceted context surrounding regional resource management decisions
- Examine resource management practices from a "climate perspective"
- Identify the causes of societal vulnerability and sensitivity to climate variations
- Suggest strategies for increasing societal resilience to climate variations
- Work across traditional disciplinary boundaries in order to tackle current real-world environmental policy/management issues.

COURSE OBJECTIVES: As a result of this course, students will be able to:

- Identify and diagram (using the Kaje system) the impacts of ENSO, PDO, and climate change on PNW climate, water resources, forests, fish, coasts, and associated human systems and characterize the associated uncertainties.
- Locate up-to-date info on climate forecasts, resource forecasts, climate change projections, and climate change impacts.
- Recognize trade-offs inherent in natural resource management, especially concerning the impacts of climate variability and change.
- Identify the steps necessary for characterizing the decision making environment around a natural resource issue.
- Propose an avenue for increasing the use of climate-related information in planning/management (generally, and in a specific context) that recognizes and accounts for current understanding of the decision making framework, as well as the uncertainties associated with the climate information.
- Demonstrate ability to communicate complex scientific information, without compromising accuracy, to (a) scientists in other disciplines and (b) lay people.
- Identify the features of a productive discussion and lead others in a productive discussion.
- Use the Kaje system to create conceptual maps of complex topics.

READINGS: The course readings consist of the Climate Impacts Group's (CIG's) draft book manuscript, *Rhythms of Change: Climate impacts on the Pacific Northwest* (Miles, E. L., A. K. Snover and The Climate Impacts Group, 2003. *Rhythms of Change: Climate Impacts on the Pacific Northwest*, in review) and selected articles. All of the readings are available via the course website.

Note: The UW has a subscription to all of the journals and clearinghouses that are directly linked from the course website; downloads should be free from any on-campus computer (although in some cases you will need to register for access). To access these resources from an off-campus machine, contact the UW libraries or use the wizard at http://www.lib.washington.edu/asp/browser/proxy.asp. Other reading materials are made available via UW Electronic Reserves; access to these materials will require logging in with your UWnetID.

ASSIGNMENTS & EXPECTATIONS:

- **Preparation & participation**: Students are expected to be active, thoughtful and prepared participants in discussion every day of class. The assigned readings are to be completed *prior* to each class meeting, as they provide the basis for in-class discussions and activities. Because the topics build on each other, regular attendance is essential for informed discussion. We will periodically ask you to provide us with an evaluation of your own level of participation in class.
- **Leading discussion**: Each student will lead class discussion once (alone or as part of a team, depending on class size). In most cases this will involve adapting the course's core questions (see first page of syllabus) to the specific topic of the day and being prepared to facilitate discussion on these questions in class. We will talk about characteristics of good discussions and strategies for facilitating good discussions during the first week of class. It's our hope that we all will use this opportunity to improve our skill at facilitating productive discussions this quarter. You will be asked to provide constructive feedback to each set of discussion leaders.
- **Essays**: Seven short (1-2 pg) essays based on the assigned readings will be *due at the beginning of class* in weeks 2-8. Each essay question will be posted on the course website the week before it is due. We would like you to go beyond the readings in your writing (but to use them as your foundation); to present a clear, focused, well-developed and substantiated argument; to write clearly and carefully; and to get the facts right. Length = two pages maximum! Essays will be graded on a scale of 1-10, with a grade of 8 assigned to a good essay, 9 to a very good, and 10 to an exceptionable essay. Your lowest score will be dropped in computing your final grade.
- **White paper**: Each student is charged with writing a 10-15 page policy-oriented "white paper" on the application of climate information to the resource issue of their choice. Brief (≤ 1 page) proposals for white paper topics are due in class April 22; we ask that each of you meet with us to discuss your proposed topic prior to submitting the proposal. During weeks 9 –10 of the quarter, each student will orally present his/her white paper to the class, receiving feedback from the instructors and the rest of the class. The final white paper is due on the date of the scheduled course final exam. More information about this assignment can be found below.
- There are **no exams**.

GRADING:	Participation	25%
	Leading discussion	10%
	Essays (lowest score will be dropped)	25%
	White paper (including presentation)	40%

We will grade each of you on the quality of your work; we will not grade on a curve. The average grade over the previous two years was ~3.5.

Because the assignments are essential for helping you keep up with the topics, and because the essays will often form the basis of class discussions, we hope you will make every effort to turn all assignments in on time. Late assignments (without prior approval) will have a 10% penalty subtracted for each day late.

WHITE PAPER ASSIGNMENT

IMPORTANT DATES:

April 1 – 20	Meet with instructors to discuss potential topic(s)
April 22	Proposal due
May 27 – June 5	In-class presentations
June 11, NOON	Final paper due

PURPOSE: In the white paper assignment, you are charged with either:

> (1) presenting a policy proposal for improving a specific aspect of regional natural resource management by using information about current and/or future patterns of PNW climate, or
>
> (2) critiquing an existing or proposed regional policy, based on its compatibility with current understanding of the impacts of climate variability and/or change on the resource.

AUDIENCE: Aim your paper directly at the people who could make the change you propose.

PROPOSAL: A brief (≤ 1 page) discussion of your proposed topic is due April 22. Please include as much information as you can about (1) the natural resource decision-making context, including information about why climate information might be valuable to planning/decision making, (2) the anticipated role of climate information in this decision, and (3) key sources that you intend to draw on in your research.

FORMAT OF THE PAPER: For the most part, the white paper should be written as if it would actually be submitted to the people who could make the change you propose. You may need to include some additional background information (on the agency/decision in question, for example) that the instructors would need to understand the paper.

The white paper itself should be 10-15 pages long. It should include a one page executive summary. Think of this (and your in-class presentation) as a chance to boil your argument and the supporting evidence down to its most convincing essence – oftentimes, the executive summary is all that the policy-making higher ups will read. Does it contain all the information you need to convince them? As supporting material, the paper should include your conceptual model (Kaje diagram) for the system under consideration.

Your paper should include a discussion of the following three elements and their interaction:

> - *the natural/environmental context*: included in this part should be a discussion of any biotic or physical interactions important to the topic, as well as the climate context. With respect to the climate context, you might discuss the relevant modes of natural climate variability, the potential for skillful climate forecasts, and/or a brief summary of climate change scenarios for a few to many decades into the future. You should also include a discussion of current understanding of

climate impacts on the natural resource of interest and the current role of climate information in management of the target resource.

- *the economic context*: What are the economic forces influencing this issue? Which group(s) of people is (are) involved? Are local, regional, or global economic forces driving the utilization of relevant resources? What are the economic risks and rewards associated with an increased use of climate information? Who might the "winners" and "losers" be if climate changes in the future?

- *the institutional/legal context*: Which institutions are involved in decision-making? Identify and discuss specific laws, mandates and/or agreements that frame the decision-making process. Is the current institutional framework adaptable to change and surprise? Is it flexible to slowly changing environmental and/or market conditions?

Some other questions to consider: Are there specific barriers that must be overcome before improved or innovative use of climate information is possible? How do you propose to overcome them? Are there consequences to ignoring climate information?

FORMAT OF THE ORAL PRESENTATION: You will have 15-20 minutes to present your white paper work, followed by 5 minutes of questions and discussion. You should begin by identifying the target audience for the policy you propose and providing the class (which will assume the role of your intended audience) with any information it needs to assume this role. You should then make your presentation as if it were to this audience. Both your classmates and the instructors will evaluate the soundness and convincingness of your proposal and will provide timely feedback that should be incorporated in your final paper.

CRITERIA FOR EVALUATION OF FINAL PAPER: Please present a clear, focused, well-developed and substantiated argument; write clearly and carefully; and get the facts right. A quality paper:

- is on a topic of interest or importance to managers in the region and is directed to those who could make or implement the change you propose
- includes a one-page executive summary
- includes (as supporting material) your Kaje diagram for the system
- has analytical depth, discussing the three decision contexts (described above) and their interaction in detail
- is clear, fun to read, well-organized and presented
- has been edited and substantially revised at least once.

RESOURCES: Sample white papers from previous students will be available via the course website. In addition, we will be happy to provide feedback at any stage of the project, from engaging in discussions and/or brainstorming sessions to commenting on drafts.

Course Schedule

Date	Topic	Assignment
April 1	**Introduction** Course Introduction Introduction to Kaje Method, Group Exercise *Readings:* *Rhythms of Change,* Chapter 1: The Integrated Assessment of the Impacts of Climate Variability and Change on the Pacific Northwest: by A. K. Snover and E. L. Miles. *Rhythms of Change,* Chapter 2: Regional Integrated Climate Impacts Assessment: by A. K. Snover and E. L. Miles. Kaje, J. 1999. "Kaje System: A conceptual modeling tool for interdisciplinary research." (Included in course packet.)	
April 3	**The climate of the PNW: Past, present, and future** Natural climate variability Anthropogenic climate change Discussion: "What makes a discussion successful?" *Readings:* *Rhythms of Change,* Chapter 2: The Underlying Rhythms: Patterns of Pacific Northwest Climate Variability, by N. J. Mantua, P.W. Mote. IPCC Working Group I. 2001. Climate Change 2001: The Scientific Basis (Summary for Policymakers). Working Group I contribution to the Third Assessment Report. *Rhythms of Change,* Chapter 3: A new tune: Possible future climate, by P. Mote, A. Hamlet, and R. Leung. Mantua, N. J. and P. W. Mote (2002). "Uncertainty in scenarios of human-caused climate change." *American Fisheries Society Symposium* 32: 263-272. *Background material (optional):* Zebiak, S. 1999. El Niño and the science of climate prediction. *Consequences* 5(2). Lippsett, L. 2000. Beyond El Niño. *Scientific American* 11(1):77-83.	

April 8	**Preparing for anthropogenic climate change** Discussion *Readings:* Wallace, J. M. 2000. What science can and cannot tell us about global warming. *BRIDGES - An Interdisciplinary Journal of Theology, Philosophy, History and Science* 7(1/2):1-15. Sarewitz, D. and R. Pielke, Jr. 2000. Breaking the global warming gridlock. *Atlantic Monthly* July:55-64. Dotto, L. 2000. Proof or Consequences. *Alternatives Journal* 26(2):8-14. Morgan, M. G. (2000). "We should not wear blinders about climate change." Opinion Section. *Pittsburgh Post-Gazette*. Pittsburgh, Pennsylvania.	Essay #1 due
April 10	**Using climate forecasts** Diffusion of innovations Issues of international equity Guest lecturer – Prof. Edward Sarachik, JISAO/Atmospheric Sciences *Readings:* Sarachik, E. 1999. The Application of Climate Information. *Consequences* 5(2). National Research Council. 1999. Summary, pages 1-6 in *Making Climate Forecasts Matter*. National Academy Press: Washington, D.C. Changnon, S. 1999. Impacts of the 1997-98 El Niño generated weather in the United States. *Bulletin of the American Meteorological Society* 80(9): 1819-1827. Broad, K., A. S. P. Pfaff, and M. H. Glantz. 2002. Effective and equitable dissemination of seasonal-to-interannual climate forecasts: Policy implications from the Peruvian fishery during El Niño 1997-98. *Climatic Change* 54: 415-438. Hartmann, H. C., T. C. Pagano, S. Sorooshian, and R. Bales (2002). "Confidence builders: Evaluating seasonal climate forecasts from user perspectives." *Bulletin of the American Meteorological Society* 83(5): 683-698. *Background material (optional):* O'Brien, K., L. Sygna, et al. (2000). Is Information Enough? User Responses to Seasonal Climate Forecasts in Southern Africa. Oslo, Center for International Climate and Environmental Resarch (CICERO), University of Oslo.	

April 15	**Institutions of water management in the PNW** Student-led discussion *Readings:* Frederick, K. D. 1995. America's Water Supply: Status and Prospects for the Future. *Consequences* 1(1). Leagues of Women Voters of Seattle, Lake Washington East and King County South. 1995. *Washington State Water Rights Study Update*. November. Connelly, M. (2001). "Home is where they'll lay me down." *Orion: People and Nature* 23 (Summer): 18. Barnard, J. (2001). Anger, frustration have long flowed in Klamath Basin. *Seattle Post-Intelligencer*. Seattle, Washington. Kitzhaber, J. (2000). A tale of two rivers (speech). National Conference of Trout Unlimited, Portland, Oregon. *Background material (optional):* Good sites for Washington state water law information: http://www.ecy.wa.gov/programs/wr/plan/munihome.html http://www.ecy.wa.gov/programs/wr/rights/wrs-home.html http://www.ecy.wa.gov/programs/wr/rules/rul-home.html *For your interest:* Reisner, M. 1993 (1986). *Cadillac Desert: The American West and its disappearing water*.	
April 17	**Water in the west** Guest lecturer – Prof. Rick Palmer, CIG, UW Civil and Environmental Engineering *Readings:* Rogers, P. 1993. Chapter 3: History of water policy in the United States, pp. 45-73. In *America's Water: Federal Roles and Responsibilities*. Cambridge, Massachusetts: MIT Press. Major, D. C. and K. D. Frederick. 1997. Water resources planning and climate change assessment methods. *Climatic Change* 37:25-40. [also contained in: *Climate change and Water Resources Planning Criteria*, K. D. Frederick, D. C. Major, and E. Z. Stakhiv (eds.). Dordrect: Kluwer Academic Publishers, 1997.] *Background material (optional):* Frederick, K. D. and D. C. Major. 1997. Climate change and water	Essay #2 due

	resources. *Climatic Change* 37:7-23. [also contained in: *Climate change and Water Resources Planning Criteria*, K. D. Frederick, D. C. Major, and E. Z. Stakhiv (eds.). Dordrect: Kluwer Academic Publishers, 1997.] Lettenmaier, D.P., A.W. Wood, R.N. Palmer, E. Wood, and E.Z. Stakhiv. 1999. Water Resources Implications of Global Warming: A U.S. Regional Perspective. *Climate Change* 43:537-579.	
April 22	**Climate impacts on PNW water resources** Student-led discussion *Readings:* Miles, E. L., A. K. Snover, A. Hamlet, B. Callahan, and D. Fluharty. 2000. Pacific Northwest regional assessment: The impacts of climate variability and climate change on the water resources of the Columbia River Basin. *Journal of the American Water Resources Association* 36(2):399-420. Palmer, R. N. and M. Hahn (2003). The potential impacts of climate change on Portland, Oregon's water supply. Submitted to *ASCE Journal of Water Resources Planning and Management.* Cohen, S. J., K. Miller, A. F. Hamlet, and W. Avis. 1999. Climate change and resource management in the Columbia River Basin. *Water International* 25(2):253-272. Glantz, M. H. 1982. Consequences and responsibilities in drought forecasting: The case of Yakima, 1977. *Water Resources Research* 18(1):3-13. *Background material (optional):* *Rhythms of Change,* Chapter 4: Impacts of Climate Variability and Change on Water Resources, by A. F. Hamlet, P. Mote, A. K. Snover.	White Paper Proposal due
April 24	**Water in the Columbia basin: Past and future conflicts** Guest lecturer – Alan Hamlet, CIG, UW Civil and Environmental Engineering *Readings:* *Rhythms of Change,* Chapter 8 (SECTION 8.4.1 (hydropower case study)): Incorporating Climate Forecasts in Management Decision Processes, by D. Huppert, J. Kaje, A. F. Hamlet, B. Callahan, D. Fluharty, Z. Johnson, N. Mantua, E. L. Miles, and A. K. Snover. Hamlet, A. F. 2001. The Role of Transboundary Agreements in the Columbia River Basin: An Integrated Assessment in the Context of Historic Development, Climate, and Evolving Water Policy. In *Climate and Water Resources in Transboundary Regions* (working manuscript title), E. Diaz (ed.) (in press). Selected newspaper articles to be announced. *Background material (optional):*	Essay #3 due

	Bonneville Power Administration (BPA), U.S. Army Corps of Engineers (USACOE), NPD, Bureau of Reclamation (USBR), PNR. 1991. *The Columbia River System: The Inside Story*. Report DOE/BP-1689 published for the Columbia River System Review by the USACOE and the USBR, September. *This report has good background material on the treaties underlying operation of the Columbia River and the initial operating objectives of the system. Copies are available from Amy Snover.* Hamlet, A. F. and D. P. Lettenmaier. 1999. Columbia River streamflow forecasting based on ENSO and PDO climate signals. ASCE Journal of Water Resources Planning and Management 125(6):333-341. *This paper describes the streamflow forecasting technique that is applied in the case study described in CIG Chapter 8 (section 8.4.1).* *For your interest:* Harden, B. 1996. *A River Lost, The Life and Death of the Columbia*. New York: W.W. Norton and Co. Dietrich, W. 1996. *Northwest Passage: The Great Columbia River*. Seattle: University of Washington Press. National Marine Fisheries Service, U.S. Army Corps of Engineers (USACOE), Bonneville Power Administration (BPA), and Bureau of Reclamation (USBR). 2000. *Biological Opinion*: *Reinitiation of consultation on operation of the federal Columbia River power system, including the juvenile fish transportation program, and 19 Bureau of Reclamation projects in the Columbia Basin; Endangered Species Act - Section 7 Consultation*. National Marine Fisheries Service, Northwest Region, December 21. (Chapter 9: Reasonable and Prudent Alternative).	
April 29	**Climate impacts on PNW salmon** Student-led discussion *Readings:* *Rhythms of Change,* Chapter 5: PNW salmon and climate: A case of discordant harmony, by N. J. Mantua, R.C. Francis, and P. W. Mote. *Rhythms of Change,* Chapter 8 (sections 8.3 and 8.4.2): Incorporating Climate Forecasts in Management Decision Processes, by D. Huppert, J. Kaje, A. F. Hamlet, B. Callahan, D. Fluharty, Z. Johnson, N. Mantua, E. L. Miles, and A. K. Snover.	

May 1	**Sustainability & Fisheries** Sustainable management of natural resources Fisheries management *Readings:* Levin, S. A. 1993. Forum: Science and sustainability. *Ecological Applications* 3(4). Ludwig, D., R. Hilborn, and C. Walters. 1993. Uncertainty, resource exploitation, and conservation: Lessons from history. *Ecological Applications* 3(4): 547-549. Holling, C. S. 1993. Investing in research for sustainability. *Ecological Applications* 3(4): 552-555. Francis, RC. 2002. Essay: Some thoughts on sustainability and marine conservation. *Fisheries* 27:18-21. Francis, R. C. 2001. "A web of small tensions." *Fisheries*. Mantua & Francis 2003. In review.	Essay #4 due
May 6	**Climate impacts on PNW forests** Student-led discussion *Readings:* *Rhythms of Change,* Chapter 6: Climate Impacts on PNW forest ecosystems, by W. S. Keeton, J. F. Franklin, and P. W. Mote. (SKIM) Kirschbaum, M. U. F. and A. Fischlin. 1996. Climate Change Impacts on Forests. Chapter 1 in Part II of *Climate Change 1995: Impacts, Adaptations and Mitigation of Climate Change,* Contribution of Working Group II to the Second Assessment Report of the Intergovernmental Panel on Climate Change. R. T. Watson, M. C. Zinyowera and R. H. Moss, eds. New York, New York, Cambridge University Press. Peterson, D.L. 1994. Recent changes in the growth and establishment of subalpine conifers in western North America, pp. 234-243. In M. Beniston (ed.), *Mountain Environments in Changing Climates*. *Background material (optional):* Whitlock, C. 1992. Vegetational and climatic history of the Pacific Northwest during the last 20,000 years: implications for understanding present-day biodiversity. *The Northwest Environmental Journal* 8:5-28. *This paper examines ecological, climatological and geological processes of the past to derive an understanding of present patterns of biodiversity and the implications of future climate change for the PNW.*	

May 8	**Issues in forestry management** Guest lecturer – Prof. David Peterson, CIG, UW Forestry *Readings:* Schimel, D.S. 1995. Terrestrial ecosystems and the carbon cycle. *Global Change Biology* 1:77-91. The Royal Society. 2001. The role of land carbon sinks in mitigating global climate change. Policy Document 10/01. The Royal Society, London, UK.	Essay #5 due
May 13	**Climate impacts on PNW coasts** Student-led discussion *Readings:* *Rhythms of Change,* Chapter 7: Climate Impacts on PNW coasts, by D. J. Canning, P. W. Mote, Z. Johnson, J. C. Field, J. Newton, and M. J. Hershman. The Heinz Center. 2000. *Evaluation of Erosion Hazards: Summary*. Prepared for the Federal Emergency Management Agency by The H. John Heinz III Center, Washington, D.C.	
May 15	**Issues in coastal management** Guest lecturer – Doug Canning, CIG, Washington State Dept of Ecology, (Shorelands Program) *Readings:* Jennings, A. and T. Jennings. 2001. "Management Structures: How We Manage Estuaries in the Pacific Northwest," for the Pacific Northwest Coastal Ecosystems Regional Study (PNCERS) (draft). Go to http://www.wsg.washington.edu/pncers/news.htm and scroll down to the "Guide to Estuary Management in the PNCERS Study Area" section. Each chapter of the report has its own hyper link.	Essay #6 due
May 20	**Integrated assessment: Science for Sustainability** Guest lecturer – Edward Miles, CIG, School of Marine Affairs, Evans School of Public Affairs *Readings:* Parson, E. A. (1996). "Three dilemmas in the integrated assessment of climate change." *Climatic Change* 34: 315-326. Barrett, K. and C. Raffensperger (1999). Precautionary Science. In *Protecting Public Health & the Environment: Implementing the Precautionary Principle,* C. Raffensperger and J. A. Tickner, eds. Washington, D.C., Island Press**:** 106-122.	

	Jacobs, K. (2002). Connecting Science, Policy, and Decision-making: A handbook for researchers and science agencies. Silver Spring, Maryland, NOAA Office of Global Programs: 25. (Will be handed out in class.) Kates, R. W. et al. (2001). "Sustainability Science." *Science* 292: 641-642. Pielke, R. A., Jr. and D. Sarewitz (2003). "Wanted: Scientific leadership on climate." *Issues in Science and Technology* Winter(27-30).	
May 22	**Developing climate resilience via resource management** Adaptive Management Developing Climate Resilience Student-led discussion *Readings:* Walker, B., S. Carpenter, et al. (2002). "Resilience management in social-ecological systems: A working hypothesis for a participatory approach." Conservation Ecology 6(1): 14. Sarewitz, D. and R. A. Pielke, Jr. (2000). Prediction in Science and Policy. In *Prediction: Science, decision making, and the future of nature,* D. Sarewitz, R. A. Pielke, Jr., and R. Byerly, Jr., eds., pp. 11-21. Washington, DC, Island Press. Pollan, M. (1991). The Idea of a Garden. In *Second Nature: A Gardener's Education*, pp. 209-238. New York, NY, Atlantic Monthly Press: 258.	Essay #7 due
May 27	White paper presentations	Evaluations of white paper present'ns due
May 29	White paper presentations	Evaluations of white paper present'ns due
June 3	White paper presentations	Evaluations of white paper present'ns due
June 5	White paper presentations Course Wrap-Up	Evaluations of white paper present'ns due