The Trachtenberg School of Public Policy and Public Administration
Elliot School of International Affairs

Monday 6:10-8:00 pm, Spring 2016

PPPA 8197.80/ IAFF 6158.80

Seminar in Science and Technology Policy

Doctoral seminar on theory and practice in science and technology policy. Critical evaluations of interdisciplinary policy analyses. Practical application of analyses to policy questions and the implementation of policy choices in selected fields related to science and technology policy.

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Office hours: by appointment

Prerequisites: The course is intended for PhD candidates who have completed their core requirements. MA candidates who have completed the International Science and Technology Policy Cornerstone Seminar (IAFF 6141) may also take the course.

Required Textbooks:

- Neal, Homer Alfred and Smith, Tobin and McCormick, Jen. *Beyond Sputnik: U.S. Science Policy in the Twenty-First Century.* Ann Arbor: University of Michigan Press, 2008.
- Custom Course Pack

Additional Books Not in Custom Course Pack:

- Greenberg, Daniel S. *Science, Money, and Politics: Political Triumph and Ethical Erosion*. Chicago: University of Chicago Press, 2001.
- Huxley, Aldous. *Brave New World Revisited*. New York: Harper & Brothers, 1958.
- Jones, R. V. *The Wizard War: British Scientific Intelligence, 1939-1945*. New York: Coward, McCann & Geoghegan, 1978.
- Kennedy, Paul M. *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War*. New York: Random House, 2013.
- Kuhn, Thomas S. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1970.
- Lambright, W. Henry. *Governing Science and Technology*. New York: Oxford University Press, 1976.

- Lowrance, William W. *Of Acceptable Risk: Science and the Determination of Safety*. Los Altos, Calif: W. Kaufmann, 1976.
- McDougall, Walter A. *The Heavens and the Earth: A Political History of the Space Age*. New York: Basic Books, 1985.
- Mumford, Lewis. *Technics and Civilization*. New York [N.Y.]: Harcourt, Brace and Co, 1934.
- Pielke, Roger A., and Roberta A. Klein. *Presidential Science Advisors Perspectives and Reflections on Science, Policy and Politics*. Dordrecht: Springer, 2010.
- Primack, J. R., and Frank Von Hippel. *Advice and Dissent: Scientists in the Political Arena*. New York: Basic Books, 1974.
- Rosenberg, Nathan, and L. E. Birdzell. *How the West Grew Rich: The Economic Transformation of the Industrial World*. New York: Basic Books, 1986.
- Skolnikoff, Eugene B. *Science, Technology, and American Foreign Policy*. Cambridge: M.I.T. Press, 1967.
- Smith, Bruce L. R. *American Science Policy Since World War II*. Washington, D.C.: Brookings Institution, 1989.
- Smith, Bruce L. R. *The Advisers: Scientists in the Policy Process*. Washington, D.C.: Brookings Institution, 1992.
- Snow, C. P. *The Two Cultures: and a Second Look*. Cambridge: University Press, 1964.
- Tassey, Gregory. *The Technology Imperative*. Cheltenham, UK: Edward Elgar, 2007.
- Varian, Hal R., Joseph Farrell, and Carl Shapiro. *The Economics of Information Technology: An Introduction*. Cambridge: Cambridge University Press, 2004.
- Wagner, Caroline S. *The New Invisible College Science for Development*. Washington, D.C.: Brookings Institution Press, 2008.
- Wilson, James Q. *The Politics of Regulation*. New York: Basic Books, 1980.

Useful Resources on the Web

- AAAS R&D Budget and Policy Program http://www.aaas.org/spp/rd/
- *Issues in Science and Technology* (National Academy of Sciences) http://www.issues.org/
- White House Office of Science and Technology Policy (also see the blog) http://www.ostp.gov
- The National Academies (NAS, NAE, IOM, NRC) http://nas.edu/
- *Science* (the journal; also see their ScienceInsider blog) http://www.sciencemag.org/
- National Science Foundation (NSF) http://www.nsf.gov especially National Science Board http://www.nsf.gov/nsb/ and NSF Science and Engineering Statistics http://www.nsf.gov/statistics/

Student Learning Objectives: Course content and requirements are designed to develop students' knowledge and skill in:

1. Understanding and being able to precisely use key terms and concepts found in modern interdisciplinary analyses of science and technology policy issues.
2. Developing and testing theories and models;
3. Framing and developing good researchable questions;
4. Designing effective approaches to address research questions;
5. Recognizing and understanding ethical and political issues that arise in conducting and reporting research; and
6. Reporting on one's own research and on studies conducted by others in a clear manner.

Course Requirements:

1. Class participation. The class is a doctoral seminar, relying on active participation by all students. I expect students to complete all readings, and participate fully in class discussion. Students should come with at least one discussion question for the class to discuss on each reading. **AND each student will be asked to present the basics about a reading for each week's topic and discuss how it relates to the selection of research questions, the design and conduct of analysis, and/or the communication of results.** S/he should provide a brief summary to the class on the night s/he presents. (10% of grade).

2. Written Assignments.

a. Article Critique (Due February 29): Students are asked to select an S&T policy research article of their choosing and submit a written critique of approximately four pages in the following format:

1) A brief description of the focus and findings;
2) Identification of the key research questions addressed;
3) A brief summary of the research design, data collection methods used, and the analysis conducted;
4) A systematic list of threats and weaknesses to the research and its findings. This can include, for example, measurement validity and measurement reliability, internal validity and external validity, and statistical conclusion validity. Note that the threats should be clearly presented, how/why that threat occurred, and labeled as those the authors acknowledged and threats the authors did not acknowledge. (15% of grade)

b. Research Synthesis (Due March 21): Students are asked to perform a systematic analysis of a set of (at least six) empirical research articles and/or reports in a subject area of their choosing. The written report should include a synthesis of the

studies plus a matrix with a series of columns containing at a minimum the following information on each piece of research (typically in bullet form):

1. Author and year
2. Primary research questions
3. Research design
4. Data collection techniques, types of sampling, and sample size
5. Data analytical techniques
6. Key findings
7. Communication mode and intended audiences
8. Limitations and robustness of the findings and conclusions (25% of grade)

3. Research Proposal. Each student will present a research proposal that could potentially be developed into a dissertation topic. The final proposal should be about 12,000 words. Presentations will be 30 minutes with 30 minutes for questions and discussion. (50% of grade)

Class Schedule and Assignments

Session 1 (January 18)

What is science policy?

Scope of the field. Policy for science, science for policy. Recent history of science in the US. Growth of the science policy field in parallel with growth of science itself. S&T organizations in the US and other countries.

Beyond Sputnik, Chapter 1: "Science Policy Defined" and Chapter 2: "U.S. Science Policy before and after *Sputnik*."

Bush, Vannevar, "Science the Endless Frontier," Washington, Government Printing Office 1945. http://www.nsf.gov/od/lpa/nsf50/vbush1945.htm

Sarewitz, Daniel, "Does Science Policy Matter?" *Issues in Science and Technology*, Summer 2007

Primack, Joel, and Frank Von Hippel. *Advice and Dissent: Scientist in the Political Arena*. New York: Meridian Books, 1976.

National Science and Technology Council (U.S.). *The Science of Science Policy: A Federal Research Roadmap: Report on the Science of Science Policy*. [Washington, D.C.]: National Science and Technology Council, 2008.

Jones, Benjamin F. "As Science Evolves, How Can Science Policy?" National Bureau of Economic Research paper, May 2010.
http://www.kellogg.northwestern.edu/faculty/jones-ben/htm/As_Science_Evolves.pdf

National Science Board, *Science and Engineering Indicators 2012*, National Science Foundation, Arlington VA, 2012. Overview section; Chapter 6: "Industry, Technology, and the Global Marketplace"; and Chapter 4, "Research and Development: National Trends and International Comparisons," p4-40 through p4-53. http://www.nsf.gov/statistics/seind12/

Session 2 (January 25)

US science policy – Who's who and what's what

Federal government institutions, states and the private sector. Budgeting and policy – how S&T fits in a larger picture. Statistical picture of U.S. science; relations to the rest of the world. The U.S. research establishment – industry, government, universities – their respective roles and relations.

Beyond Sputnik, Chapter 3: "The Players in Science Policy" and Chapter 4: "The Process of Making Science Policy" and Chapter 5: "Federal Funding for Research: Rationale, Impact, and Trends" pp72-78. Chapter 7: "Federal Laboratories"; Chapter 8: "Industry"; and Chapter 9: "The States"

Smith, Bruce L. R. *The Advisers: Scientists in the Policy Process*. Washington, D.C.: Brookings Institution, 1992.

Lambright, Henry (2008) "Government and Science: A Troubled, Critical Relationship and What Can be Done About It", Public Administration Review, Jan.-Feb.: 5-18.

Price, Don K., "The Scientific Establishment," reprinted with permission from *Science*, June 29, 1962, 136, pp. 1099–1106, in *AAAS Science and Technology Yearbook 2001*, Teich et al eds., Washington, American Association for the Advancement of Science, 2001, pp 21-41.
http://www.aaas.org/spp/yearbook/2001yearbook.pdf

Crow, Michael M. and Tucker, Christopher, "The American Research University System as America's *de facto* Technology Policy," 1999, Reprinted by the Consortium for Science, Policy & Outcomes at the Arizona State University.
http://cspo.org/products/articles/researchuniversity.pdf

Pielke, Roger A., and Roberta A. Klein. *Presidential Science Advisors Perspectives and Reflections on Science, Policy and Politics*. Dordrecht: Springer, 2010. <http://public.eblib.com/EBLPublic/PublicView.do?ptiID=603148>.

Session 3 (February 1)

Social, political and economic structure of science

Science as a meritocracy. Basic research, applied research, etc. Scientific publication, priority and intellectual property. Ethics and scientific integrity.

Sociology of science and scientific institutions.

Optional: Kuhn, Thomas S. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1970.

Huxley, Aldous. *Brave New World Revisited*. New York: Harper & Brothers, 1958.

Snow, C. P. *The Two Cultures; and, A Second Look: An Expanded Version of 'The Two Cultures and the Scientific Revolution'*. London: Cambridge U.P., 1969.

Mumford, Lewis, and Langdon Winner. *Technics and Civilization*. Chicago: The University of Chicago Press, 2010.

Lambright, W. Henry. *Governing Science and Technology*. New York: Oxford University Press, 1976.

Wagner, Caroline S. *The New Invisible College: Science for Development*. Washington, D.C.: Brookings Institution Press, 2008.

Office of Science and Technology Policy and Office of Management and Budget, Memorandum M-12-15, "Science and Technology Priorities for the FY 2014 Budget," June 2012. http://www.whitehouse.gov/sites/default/files/m-12-15.pdf

Session 4 (February 8) Student presentations on designs.

Science and foreign policy

Science as an instrument of foreign policy. Science diplomacy. Scientific involvement in international relations – from the Enlightenment to the Cold War to the present day. International institutions, multilateral agreements, NGOs and other groups. Comparative National Science Institutions U.S., UK, Germany, Continental Europe, Japan, Brazil, Soviet experience, India, China

Beyond Sputnik, Chapter 17: "Globalization and Science Policy"; Chapter 19, "Grand Challenges for Science and Society"; and Chapter 20, "Science, Science Policy and the Nation's Future"

Deborah D. Stine, *Science, Technology, and American Diplomacy: Background and Issues for Congress,* Congressional Research Service, Washington, DC, June 29, 2009. Accessed at http://www.fas.org/sgp/crs/misc/RL34503.pdf

National Research Council, *U.S. and International Perspectives on Global Science Policy and Science Diplomacy: Report of a Workshop*. Washington, DC: The National Academies Press, 2011.

Skolnikoff, Eugene B. *Science, Technology, and American Foreign Policy*. Cambridge: M.I.T. Press, 1967.

Session 5 (February 15) Student presentations on designs.

Science in economic development

Role of science and technology in developing countries at different stages of economic development. S&T in development assistance. Building scientific communities in developing nations.

Committee on Science, Engineering and Public Policy, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National Academies Press, Washington DC, 2007. Preface and Executive Summary. http://www.nap.edu/catalog.php?record_id=11463

Kitagawa, Fumi, "Policy Reforms, New University-Industry Links and Implications for Regional Development in Japan," Centre for Innovation, Research and Competence in the Learning Economy (CIRCLE) Lund University Working Paper 2008/08, Lund Sweden, 2008. http://www.circle.lu.se/upload/CIRCLE/workingpapers/200808_Kitagawa.pdf

Rosenberg, Nathan and L.E. Birdzell Jr. "The Link Between Science and Wealth" in *How the West Grew Rich: The Economic Transformation of the Industrial World*. Basic Books, 1986.

Hal Varian, Joseph Farrell, and Carl Shapiro, *The Economics of Information Technology*, Cambridge University Press, 2004.

Gregory Tassey, *The Technology Imperative*, Chapter 6, "Underinvestment in R&D" Edward Elgar, 2007.

Session 6 (February 22)

National innovation systems

Comparative approaches to science and technology as a means of promoting economic growth in developed nations. Economics of innovation. Role of R&D and human resources. Development of the corporation and private R&D

Committee on Global Science and Technology Strategies and Their Effect on U.S. National Security, *S&T Strategies of Six Countries: Implications for the United States*, National Academies Press, Washington DC, 2010. (Brazil, China, Russia, India, Japan, and Singapore) http://www.nap.edu/catalog/12920.html

Dahlman, Carl, "China and India: Emerging Technical Powers," *Issues in Science and Technology*, 2007. http://www.issues.org/23.3/dahlman.html

Wolff, Alan, "China's Drive Toward Innovation," *Issues in Science and Technology* , 2007. http://www.issues.org/23.3/wolff.html

Tripathi, Salil, "India's Growth Path: Steady but not Straight," *Issues in Science and Technology*, 2007. http://www.issues.org/23.3/tripathi.html

European Commission Seventh Framework Programme Fact Sheets, "FP7: Tomorrow's Answers Start Today," European Commission, http://ec.europa.eu/research/fp7/pdf/fp7-factsheets_en.pdf

European Commission, "Horizon 2020 - the Framework Programme for Research and Innovation," European Commission, http://ec.europa.eu/research/horizon2020/index_en.cfm Also "Green Paper on a Common Strategic Framework for EU Research and Innovation Funding: Analysis of public consultation," at http://ec.europa.eu/research/horizon2020/pdf/consultation-conference/summary_analysis.pdf#view=fit&pagemode=none

Session 7 (February 29) *****ARTICLE CRITIQUE DUE*****

Regulations and science

Risk and risk communication. How uncertainty affects the role of science in policy. Comparative regulatory systems (e.g., regulation of GMOs in Europe, the U.S., and elsewhere). Role of bureaucracy and regulation in policy decisions. Regulation of science (hazardous research, use of animals, etc.)

Wilson, James Q. *The Politics of Regulation*. New York: Basic Books, 1980.

Lowrance, William W. *Of Acceptable Risk: Science and the Determination of Safety*. Los Altos, Calif: W. Kaufmann, 1976.

Greenberg, Daniel S. *Science, Money, and Politics: Political Triumph and Ethical Erosion*. Chicago: University of Chicago Press, 2001.

Sundlof, Stephen. "The role of science in regulation and decision making." *AgBioForum*, *3*(2&3), pp. 137-140. 2000. Accessed at http://www.agbioforum.org/v3n23/v3n23a11-sundlof.htm

Food and Drug Administration, Final Rule *Current Good Manufacturing Practice Requirements for Combination Products*, 78 FR 4307, pp. 4307-4323, published January 22, 2013, accessed at https://www.federalregister.gov/articles/2013/01/22/2013-01068/current-good-manufacturing-practice-requirements-for-combination-products

Session 8 (March 7)

Big science

The changing character of research and its implications for funding, international cooperation, and the structure of the scientific community. Examples (the Manhattan Project, CERN, ISS, ITER). History of science, post-Newton and the Royal Society, History of Technology post-Harper's Ferry Arsenal, History of U.S. Science post WWII.

Beyond Sputnik, Chapter 12: "Big Science"

Smith, Bruce L. R. *American Science Policy Since World War II*. Washington, D.C.: Brookings Institution, 1989.

Mason, Betsy, "An Insider's Guide to the Large Hadron Collider," *Wired*, September 2009. http://www.wired.com/wiredscience/2009/09/collider_excerpt/

Cho, Adrian. "Higgs Boson Makes Its Debut After Decades-Long Search," *Science*, 13 July 2012: 141-143. http://www.sciencemag.org/content/337/6091/141.full.pdf

Committee for a Decadal Survey of Astronomy and Astrophysics, *New Worlds, New Horizons in Astronomy and Astrophysics*, National Academies Press, Washington DC, 2010, Executive Summary and Chapter 1: "2020 Vision." (Preface, Executive Summary). http://www.nap.edu/catalog/12951.html

Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report*, IPCC, Geneva Switzerland, 2007. http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf and about the IPCC: http://www.ipcc.ch/organization/organization.htm

National Academy of Engineering, "Grand Challenges for Engineering" at http://www.engineeringchallenges.org/. Grand Challenges booklet: http://www.engineeringchallenges.org/Object.File/Master/11/574/Grand%20Challenges%20final%20book.pdf

Session 9 (March 21) *****RESEARCH SYNTHESIS DUE*****

Human resources for science and engineering

STEM education. The employment picture for scientists and engineers. International mobility, visas, different national perspectives.

Beyond Sputnik, Chapter 15: "Science, Technology, Engineering, and Mathematics Education" and Chapter 16, "The Science and Engineering Workforce"

Committee on Science, Engineering and Public Policy, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National

Academies Press, Washington DC, 2007. Chapter 5: "What Actions Should America Take in K-12 Science and Mathematics Education to Remain Prosperous in the 21st Century"

Committee on Research Universities; Board on Higher Education and Workforce; Policy and Global Affairs; National Research Council, *Research Universities and the Future of America: Ten Breakthrough Actions Vital to Our Nation's Prosperity and Security*, National Academies Press, Washington DC, 2012. Summary through Chapter 4 (pp. 1-68) http://www.nap.edu/catalog.php?record_id=13396

Session 10 (March 28)

Health, biomedical research, and biotechnology

Public and private funding of biomedical R&D. Translational research – how does biomedical research affect human health care. Emergence of biotechnology in the past 40 years. "Big pharma."

Mittra, James (2007) "Life Science Innovation and the Restructuring of the Pharmaceutical Industry: Merger, Acquisition\ and Strategic Alliance Behaviour of Large Firms", Technology Analysis and Strategic Management, 19(3): 279-301.

Dutfield, Graham (2008) "Delivering Drugs to the Poor: Will the TRIPS Amendment Help?" American Journal of Law & Medicine, 34: 107-124.

Feldman Maryannn P. (2007) "Perspectives on Entrepreneurship and Cluster Formation: Biotechnology in the US Capitol Region", in Karen R. Polenske (ed) The Economic Geography of Innovation, Cambridge University Press.

Porter, Kelley, Kjewrsten Bunker Whittington and Walter W. Powell (2005) "The Institutional Embeddedness of High-Tech Regions: Relational Foundations of the Boston Biotechnology Community", in Stefano Breschi and Franco Malerba (eds) Clusters, Networks and Innovation, Oxford University Press.

World Wide Views: http://www.wwviews.org/. Review background material on web site, and examine World Wide Views on Biodiversity section.

Session 11 (April 4)

Science, technology and the military

Military competition among nations and role of technology. History of military technology in warfare and peace. Dual use technology. Needs of science versus needs of security.

Beyond Sputnik, Chapter 11: "Science for National Defense"; Chapter 13: "Scientific Infrastructure"; Chapter 18: "Science and Homeland Security"

Jones, R. V. *The Wizard War: British Scientific Intelligence, 1939-1945*. New York: Coward, McCann & Geoghegan, 1978.

McDougall, Walter A. *The Heavens and the Earth: A Political History of the Space Age*. New York: Basic Books, 1985.

Enthoven, Alain C., and K. Wayne Smith. *How Much Is Enough? Shaping the Defense Program, 1961-1969*. New York: Harper & Row, 1971.

Kennedy, Paul M. *Engineers of Victory: The Problem Solvers Who Turned the Tide in the Second World War*. New York: Random House, 2013.

Session 12 (April 11)

Science and democracy – public participation in science policy

International perspectives. The role of the UN and NGOs. Controversies among scientists and between scientists and politicians. Public engagement.

Beyond Sputnik, Chapter 10: "The Public"

National Science Board, *Science and Engineering Indicators 2012*, National Science Foundation, Arlington VA, 2012. Chapter 7: "Science and Technology: Public Attitudes and Understanding" and Chapter 1: "Elementary and Secondary Mathematics and Science Education."

Olson, Steve, and Stephen A. Merrill. *Measuring the Impacts of Federal Investments in Research A Workshop Summary*. Washington, D.C.: National Academies Press, 2011. <http://site.ebrary.com/id/10500208>.

Sclove, Richard, *Reinventing Technology Assessment: A 21st Century Model*, Woodrow Wilson Center for International Scholars, Washington DC, 2010. http://www.wilsoncenter.org/topics/docs/ReinventingTechnologyAssessment1.pdf
Appendices are optional.

Bal, Ravtosh. *Public Participation in Science and Technology Policy Consensus Conferences and Social Inclusion*. Atlanta, GA: Georgia Institute of Technology, 2012. http://hdl.handle.net/1853/44773

Pielke Jr., Roger, "When scientists politicize science: making sense of the controversy over The Skeptical Environmentalist," *Environmental Science and Policy*, 7 (2004), pp. 405-417.

Session 13 (April 18)

Current Issues and Special topics [students to choose one]

Space
Energy
Environment and/or global climate change
Emerging technologies: Synthetic biology, Nano
Information and communications technology
Aviation
Transportation (other than aviation)
STEM Education
Etc.

Session 14 (April 25)

Make up session

****Research Proposal Presentations (May 2) During Finals Week****

Depending on the number of students, this session may be combined with Session 13 to provide sufficient time.

Addendum

This course focuses on science policy and politics. Another instructor might tilt it toward methodology and prompt students to think more specifically about dissertations. An alternative emphasis might:

1. Add more quantitative and economics material in the sense of the "Economics of Technological Change" course by Prof. Vonortas. That course covers many concepts there that a doctoral candidate might need for a dissertations, e.g., externalities, spillovers, network economies, IPR, industry evolution, knowledge diffusion, foreign investment, risk finance, business and technology cycles, etc.

2. Add material on R&D and innovation program evaluation. This could be a combination of qualitative and quantitative methods, e.g., case studies, interviews and surveys to intensive econometrics and modeling. Full class sessions could be devoted to creating survey instruments, case studies, and more than one class for modeling. On the other hand, there are research methods classes that cover these topics already.

3. Add discussions of available policy tool suites, such as (a) regulatory instruments (IPR, standards, anti-trust, and ethics (nano, bio), (b) financial and economic instruments (subsidies, tax incentives, loans, loan guarantees, risk capital, private equity), and (c) soft instruments such as pilots and demonstrators, training and capacity building, information campaigns, open dialogue and platforms, public private partnerships, etc.

Policies in The Trachtenberg School Courses

1. Incompletes: A student must consult with the instructor to obtain a grade of I (incomplete) no later than the last day of classes in a semester. At that time, the student and instructor will both sign the CCAS contract for incompletes and submit a copy to the School Director. Please consult the TSPPPA Student Handbook or visit our website for the complete CCAS policy on incompletes.

2. Submission of Written Work Products Outside of the Classroom: It is the responsibility of the student to ensure that an instructor receives each written assignment. Students can submit written work electronically only with the express permission of the instructor.

3. Submission of Written Work Products after Due Date: Policy on Late Work: All work must be turned in by the assigned due date in order to receive full credit for that assignment, unless an exception is expressly made by the instructor.

4. Academic Honesty: Please consult the "policies" section of the GW student handbook for the university code of academic integrity. Note especially the definition of plagiarism: "intentionally representing the words, ideas, or sequence of ideas of another as one's own in any academic exercise; failure to attribute any of the following: quotations, paraphrases, or borrowed information." All examinations, papers, and other graded work products and assignments are to be completed in conformance with the George Washington University Code of Academic Integrity.

5. Changing Grades After Completion of Course: No changes can be made in grades after the conclusion of the semester, other than in cases of clerical error.

6. The Syllabus: This syllabus is a guide to the course for the student. Sound educational practice requires flexibility and the instructor may therefore, at her/his discretion, change content and requirements during the semester.

7. Accommodation for Students with Disabilities: In order to receive accommodations on the basis of disability, a student must give notice and provide proper documentation to the Office of Disability Support Services, Marvin Center 436, 202-994-8250. Accommodations will be made based upon the recommendations of the DSS Office.