

**THE GEORGE WASHINGTON UNIVERSITY**  
IAFF 290.17

**“Forward Engagement:  
Study of Long-Range Developments as Factors  
in Contemporary National Policy”**

Professor Leon Fuerth  
Phone: 202-994-8921  
E-mail: [esialsf@gwu.edu](mailto:esialsf@gwu.edu)  
Office: 1957 E Street, Suite 401

Spring Semester 2005  
Tuesdays, 6:10-8:00pm  
Class meets: 1957 E Street, Room 309  
For appointments: contact David

Assistant: David Kay  
Phone: 202-994-4543  
E-mail: [esialsf@gwu.edu](mailto:esialsf@gwu.edu)

Class meets: 1/18; 1/25; 2/1; 2/8; 2/15; 2/22; 3/1; 3/8; 3/22; 3/29; 4/5; 4/12; 4/19; 4/26;  
5/3; 5/10. No class 3/15 due to spring break.

*Meetings with additional guest speakers may be scheduled throughout the semester. We will notify you of these dates and attendance for these meetings is optional.*

*Note: All examinations, reports, and other graded work products and assignments are to be completed in conformance with The George Washington University Code of Academic Integrity.*

**Course Mission Statement:**

The rate of major historical change appears to be accelerating, in ways that could challenge our democratic society's ability to perceive events in time to debate and decide upon appropriate responses. If so, then there is a need to combine methods of forecasting with mechanisms for policy making, to create a process that could be called "Forward Engagement." The concept of "Forward Engagement," is that early awareness and early preparation for potentially major events is preferable than awaiting their unambiguous onset.

Students will explore long-range trends and events in science, economics, defense and governance that could have a major impact on our society and on the world in general, by the time today's students reach positions of senior responsibility. Participants in this course will explore whether such events could prove particularly challenging to democratic governance. They will also analyze ways in which it would be possible, starting now, to modify policy in the hope of favorably influencing the course and impact of these developments. Finally, they will consider ways to improve the capacity of the government of the United States to

perceive and respond to the accelerating rush of future events. This semester, the focal point will shift from the executive branch to the congress.

### **Methodology:**

Readings, lectures, guest speakers, contact with experts, class discussion, individual and group work

### **Grading Output:**

Individual papers; group papers; one final collective class paper and briefing. Briefing is to be delivered to an invited guest who has held a senior policy-level responsibility in government. Peer Review.

### **Course Structure and Required Readings:**

The course is broken into five phases:

- *Phase I:* Orientation; Read-in time; Contact with issue area and future-minded experts; Exposure to forecasting concepts (sessions 1-4)

Cornish: primer on forecasting.

Proteus: scenarios

Halal: Delphi <http://home.gwu.edu/~halal/Articles/articles.html> and  
<http://gwforecast.gwu.edu/>

Peterson

Mazarr (not on required list)

- *Phase II:* Identifying Future Contingencies of Interest (FCI) (sessions 5-6)

Kurzweil

Dyson

Fukuyama (not on required list)

- *Phase III:* Identifying policy issues relating to FCIs (sessions 7-8)

- *Phase IV:* Integration; Focus on methods for policy/forecasting integration and preparation of final paper and presentation (sessions 9-11)

Rejeski

Lempert

Heller (not on required list)

- *Phase V:* Preparation of final paper and presentation (sessions 12-16)

**Course Roadmap:**

**PHASE I: ORIENTATION TO COURSE AND FORECASTING CONCEPTS**

**SESSION #1 – January 18:**  
(semester week #1)

Course Introduction. Organization of the class into four working groups: (A) science & technology;(B) economics;(C) security; and (D) governance. Discussion of objectives of the course. General presentation on forecasting, and prediction & projection by Prof. Fuerth

*First interval* (from January 18-25): Students read into the Welcome Kit and course materials. Students begin to make contact with outside experts (list will be provided by e-mail). Students meet for individual appointments with Prof. Fuerth in the opening weeks - arrange through David Kay.

**SESSION #2 – January 25:**  
(semester week #2)

Discussion with former Forward Engagement course class leaders.

*Second interval* (from January 25-February 1): Students prepare individual papers on policy applications, present or future, of Prediction and Projection (see table below). Students will review papers from Prof. Fuerth’s “Long-term Forecasting” skills course, particularly those papers that address topics related to their own topics for the Prediction and Projection papers. Students will also schedule individual meetings with Prof. Fuerth during this period to discuss their papers. **Papers are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on January 31<sup>st</sup>.**

	SCIENCE & TECHNOLOGY	ECONOMICS	SECURITY	GOVERNANCE
PREDICTION	P F	P F	P F	P F
PROJECTION	P F	P F	P F	P F

**SESSION #3 – February 1:**  
(semester week #3)

Class discussion of student papers on Prediction and Projection. Presentation on Delphi method and Scenario by Prof. Fuerth and possible guest speaker.

*Third interval* (from February 1-February 8): Students prepare individual papers on policy applications, present or future, of Delphi method and Scenarios. Students will again review papers from Prof. Fuerth’s “Long-term Forecasting” skills course, particularly those papers that address topics related to their own topics for the Delphi method and Scenario papers. Students who haven’t met with Prof Fuerth yet will schedule individual meetings with him during this period to discuss their papers. **Papers are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on February 7.**

	SCIENCE & TECHNOLOGY	ECONOMICS	SECURITY	GOVERNANCE
DELPHI METHOD	P F	P F	P F	P F
SCENARIOS	P F	P F	P F	P F

**SESSION #4 – February 8:**  
(semester week#4)

Discuss papers on Delphi Method and Scenarios. Presentation by Professor Fuerth on the concept of Future Contingencies of Interest (FCIs).

*Fourth interval* (from February 8-February 15): Students read FCIs from work of earlier classes. By working group, students prepare individual papers on FCIs. **Papers are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu), by noon on Feb 14<sup>th</sup>.**

## PHASE II: IDENTIFYING AND DEALING WITH FUTURE CONTINGENCIES OF INTEREST.

### SESSION #5 – February 15:

(semester week #5)

Discuss papers on FCIs. Presentation by Professor Fuerth on complexity, nodes and matrix approach.

*Fifth interval* (from February 15-February 22): As a class, students prepare collective group paper on FCIs, nodes, complexity, and condense into matrix form. **Paper and matrix are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on February 21.**

### SESSION #6 – February 22:

(semester week #6)

Discussion of group paper on FCIs, matrix etc. Presentation by Professor Fuerth on “legacy” recommendations from previous class. Class will form ‘Ad Hoc Task Force #1’ (comprised of half the students) to deal with these legacy issues and will prepare a paper and oral presentation on these issues.

*Sixth interval* (from February 22-March 1): Only half the class will be responsible for paper and presentation. **Papers to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on February 28<sup>th</sup>.**

## PHASE III: IDENTIFICATION OF POLICY ISSUES

### SESSION #7 – March 1:

(semester week #7)

Discussion of task force papers on legacy issues. Discussion of transition to policy issues conducted by Prof. Fuerth. Discussion of policy issues relating to Groups A (science and technology) and B (economics). Possible guest speakers.

*Seventh interval* (from March 1-March 8): Students in Groups A (science & technology) and B (economics) prepare individual papers on policy issues. Consult with outside experts. Meet by working group with Prof. Fuerth. **Papers are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on March 7.**

**SESSION #8 – March 8:**

(semester week #8)

Review of papers on Group A (science & technology) and Group B (economics) policy issues. Presentation on Group C (security) and Group D (governance). Possible guest speakers.

*Eighth interval* (from March 8-March 22): Students in Groups C (security) and D (governance) prepare individual papers on policy issues. Consult with outside experts. Meet by working group with Prof. Fuerth. **Papers are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on March 21.**

**NO CLASS MARCH 15 DUE TO SPRING BREAK**

**PHASE #IV: INTEGRATION**

**SESSION #9 – March 22**

(semester week #9)

Review of papers on Group C (security) and Group D (governance) policy issues. Presentation on existing methods and potential methods for policy/forecast integration. Guest speaker.

*Ninth interval* (from March 22-March 28): Continue with scheduled readings.

**SESSION #10 – March 29:**

(semester week #10)

Presentation on budgetary/congressional dimensions regarding blending forecasting and policy by Prof. Fuerth and possible guest speaker. Class will form ‘Ad Hoc Task Force #2’ comprised of the second half of students.

*Tenth interval* (from March 29-April 5): ‘Ad Hoc Task Force #2’ will review the final reports of previous classes and prepare short critiques to cover modes of integration proposed in those papers. Students to be ready to present orally in Session #11. **Papers are to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on April 4th.**

**SESSION #11 – April 5:**

(semester week #11)

Discussion of critiques of earlier proposals for institutional mechanisms to blend forecasting and policy.

## **PHASE V: PREPARATION OF FINAL PAPER AND PRESENTATION.**

*Eleventh interval* (April 5-April 12) the class will prepare a rough outline of its overall class paper, working under the direction of the class leaders. **This paper should be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon April 11<sup>th</sup>.**

### **SESSION #12 – April 12:** (semester week #12)

Discussion of rough outline with professor.

*Twelfth interval* (April 12-April 19), class moves to dense outline of overall paper. Class will work as drafting committee under the leadership of the class leaders. Students begin work on final paper, executive summary, and presentation. **Dense outline is to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon April 18<sup>th</sup>.**

### **SESSION #13 – April 19:** (semester week #13)

Discussion of dense outline with professor.

*Thirteenth interval* (from April 19-April 26) students will prepare first draft of overall paper. **This paper should be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on 4/25.**

### **SESSION #14 – April 26:** (semester week #14)

Review first draft paper with professor.

*Fourteenth interval* (from April 26-May 3): Students complete work on final paper, prepare executive summary and presentation. **This paper is to be e-mailed to [esialsf@gwu.edu](mailto:esialsf@gwu.edu) by noon on May 2nd.**

### **Session#15 – May 3:**

Dry run of final paper and presentation.

Fifteenth interval (from May 3- May 9<sup>th</sup>). Final adjustments.

### **Session #16 – May 10:**

Final presentation by students to invited guest panel.

### Key Assignments & Dates:

Individual papers on policy applications of Prediction and Projection – January 31<sup>st</sup>  
Individual papers on policy applications of Delphi method and Scenarios – February 7<sup>th</sup>

Individual papers on FCIs – February 14<sup>th</sup>

Class group paper and matrix on FCIs, nodes and complexity – February 21<sup>st</sup>  
Ad Hoc Task Force #1 prepares paper and presentation on legacy issues – February 28<sup>th</sup>

Individual papers Group A (science & technology) paper on policy issues – March 7<sup>th</sup>  
Individual papers Group B (economic) paper on policy issues – March 7<sup>th</sup>

Individual papers Group C (security) paper on policy issues – March 21<sup>st</sup>  
Individual papers Group D (governance) paper on policy issues – March 21<sup>st</sup>

Ad Hoc Task Force #2 prepares written/oral critique of previous class recommendations - April 4<sup>th</sup>

Rough outline of final collective report – April 11<sup>th</sup>

**Dense outline of final report - April 18<sup>th</sup>**

Full-up draft of final report – April 26<sup>th</sup>

**Complete final paper, along with executive summary and powerpoint – May 2<sup>nd</sup> with final finish by May 10<sup>th</sup>, in time for presentation.**



## READING LIST:

HONR/IAFF 720.80  
“*Forward Engagement:  
The Study of Long-range Developments  
as Factors in Contemporary National Policy*”

---

### Required Books:

Edward Cornish, *Futuring: The Exploration of the Future* (Bethesda, MD: World Future Society, 2004.)

Michael Crichton, *Prey* (New York: HarperCollins, 2002)

Freeman J. Dyson, *The Sun, The Genome, and The Internet* (New York: Oxford University Press, 1999.)

Ray Kurzweil, *The Age of Spiritual Machines* (New York: Penguin Group, 1999).

Robert J. Lempert, Steven Popper, and Steven C. Bankes, *Shaping the Next One Hundred Years: New Methods for Quantitative, Long-Term Policy Analysis* (RAND Pardee Center, Arlington, Virginia, 2003.) <http://www.rand.org/publications/MR/MR1626/>

Michael S. Loescher, Chris Schroeder & Charles W. Thomas, *Proteus: Insights from 2020* (The National Reconnaissance Office: The Copernicus Institute Press & Michael S. Loescher, 2000.)

*(Note: Hardcopies will be provided to students.)*

John L. Petersen, *Out of the Blue: Wild Cards and Other Big Future Surprises* (Arlington, Virginia: The Arlington Institute, 1997.)

David Rejeski (ed.), *Government Foresight – Myth, Dream, or Reality?* (Washington, DC: Woodrow Wilson International Center for Scholars, 2003.)

*(Note: Hardcopies will be provided to students.)*

Peter Schwartz, *Art of the Long View* (New York: Doubleday, 1991)

### Reports:

Challenges of the Global Century: Report of the Project on Globalization and National Security. *Institute for National Strategic Studies, National Defense University*, 2001.  
<http://www.ndu.edu/inss/books/ChallGlobCen/GloCenCont.html>

Global Trends 2015: A Dialogue About the Future With Nongovernment Experts. *Central Intelligence Agency: National Intelligence Council*, December 2000. Available at: <http://www.cia.gov/cia/publications/globaltrends2015/>

Long-Term Global Demographic Trends: Reshaping the Geopolitical Landscape, *Office of Transnational Issues, Strategic Assessments Group, Directorate of Intelligence, CIA*, July 2001. Available at: [http://www.cia.gov/cia/reports/Demo\\_Trends\\_For\\_Web.pdf](http://www.cia.gov/cia/reports/Demo_Trends_For_Web.pdf)

New World Coming: American Security in the 21<sup>st</sup> Century, *The United States Commission on National Security/21<sup>st</sup> Century*, September 15, 1999.

<http://www.nssg.gov/Reports/reports.htm>

(Read sections (1) Major themes and implications and (1a) Supporting research. Look over sections (2) and (3).)

Societal Implications of Nanoscience and Nanotechnology. Mihail Roco and William Bainbridge, Editors. NSET Workshop Report. *National Science Foundation*. March 2001. Available at: <http://itri.loyola.edu/nano/NSET.Societal.Implications/>

The United States and the Third World Century: How Much Will Demographics Stress Geopolitics? *Office of Transnational Issues, Strategic Assessments Group, Directorate of Intelligence, CIA*, February 2002.

### **Recommended Books:**

Broderick, Damien. *The Spike*. New York: Tom Doherty Associates Book, 2001

Dyson, George B. *Darwin Among the Machines*. 1997.

Francis Fukuyama. *Our Posthuman Future: Consequences of the Biotechnology Revolution*. 2002.

Howard Rheingold. *Smart Mobs: The Next Social Revolution*. 2003.

Friedman, George and Meredith. *The Future of War*. 1996.

Friedman, Thomas. *The Lexus and the Olive Tree*. 1999.

Hardt, Michael. *Empire*. 2000. 2003.

Heller, Peter. *Who Will Pay? Coping with Aging Societies, Climate Change, and Other Long-Term Fiscal Challenges*.

Huntington, Samuel P. *The Clash of Civilizations and the Remaking of World Conflict*. 1996.

Kaplan, Robert. *The Coming Anarchy*. 2000.

Kennedy, Paul. Preparing for the Twenty-First Century. 1993.

Lake, Anthony. 6 Nightmares. Boston: Little, Brown and Company, 2000.

Lomborg, Bjorn. The Skeptical Environmentalist. Cambridge, United Kingdom: Cambridge University Press, 2001.

Mazarr, Michael J. Global Trends 2005. New York: Palgrave, 1999.

Micklethwait, John. A Future Perfect: The Challenge and Hidden Promise of Globalization. New York: Crown Publishers, 2000.

Morrison, Reg. The Spirit in the Gene: Humanity's Proud Illusion and the Laws of Nature. Ithaca, NY: Cornell University Press, 1999.

Our Global Neighbourhood: The Report of the Commission on Global Governance. Oxford: Oxford University Press, 1995.

Rosecrance, Richard. The Rise of the Virtual State: Wealth and Power in the Coming Century. New York: Basic Books, 1999.

Rosen, Jeffrey. The Unwanted Gaze: The Destruction of Privacy in America. New York: Random House, 2000.

Soros, George. George Soros on Globalization. Public Affairs: 2002.

Van Creveld, Martin. The Transformation of War. 1991.

Wilson, Edward O. The Future of Life. New York: Alfred A. Knoff, 2002.

Wright, Robert. Nonzero: The Logic of Human Destiny. 2000.

### **Book Chapters:**

The Dangers of Peace (Ch. 9). The Coming Anarchy. Robert Kaplan, 2000.

Fiddling While Rome Burns (Ch. 12). Darwin Among the Machines. George B. Dyson, 1997.

Future War (Ch. 7). The Transformation of War. Martin van Creveld, 1991.

If You Want to Speak to a Human Being, Press 1 (Ch. 17) The Lexus and the Olive Tree. Thomas Friedman, 1999.

Last and First Men (Ch. 11) Darwin Among the Machines, George B. Dyson, 1997.

The Multitude Against Empire (Ch. 4.3). Empire. Michael Hardt & Antonio Negri, 2000.

A New Foundation (Ch. 13) The Future of War. George & Meredith Friedman, 1996.

Preface. Empire. Michael Hardt & Antonio Negri, 2000.

Preparing for the Twenty-First Century (Ch. 14). Preparing for the Twenty-First Century. Paul Kennedy, 1993.

The Shape of Things to Come (Postscript). The Transformation of War. Martin van Creveld, 1991.

Space and the Future of American Strategy (Ch. 14) The Future of War. George & Meredith Friedman, 1996.

There is a Way Forward (Ch. 18). The Lexus and the Olive Tree. Thomas Friedman, 1999.

The West, Civilizations, and Civilization (Ch. 12). The Clash of Civilizations and the Remaking of World Conflict. Samuel P. Huntington, 1996.

#### **Articles:**

“A Globe Clothing Itself With a Brain.” *Wired*. 1995.

“Artificial Intelligence for the New Millennium.” *The New York Times*, Jun 29, 2001.

“A Watchful State.” *The New York Times*. 10/7/01. Section 6, page 38.

“Battlefield Space.” *The New York Times Magazine*, Aug 5 2001.

“Big Brother or Friendly Coach?” *Exploring Your Future*, World Future Society, 2000.

“Bush’s Advisers on Ethics Discuss Human Cloning.” *The New York Times*. 1/18/02.

“Bush’s No Win Choice.” *Time*. 7/23/01.

“Can the I.M.F. Tame the Capital Beast?” *The New York Times*. 10/14/01. Section 3, page 5.

“Danny Hillis’s Vision.”

[http://white.ece.ncsu.edu/nnresearch/Items/danny\\_hilliss\\_vision.htm](http://white.ece.ncsu.edu/nnresearch/Items/danny_hilliss_vision.htm)

“Dehydrating Conflict.” Postel, Sandra L. *Foreign Policy*. Sept/Oct 2001.

“Disputes on Electronic Message Encryption Take On New Urgency.” *The New York Times*. 9/25/01. Section C, page 1.

“Doomsday Scenarios.” *The Futurist*. Nov/Dec 2001.

“Economic Scene.” *The New York Times*. 1/31/02.

“Efforts to Transform Computers Reach Milestone.” *The New York Times*. 12/20/01.

“The Emergent Kingdom: Machines that Think like People.” *Exploring Your Future*, World Future Society, 2000.

“Euro Deposits the Mark, Grieving Many Germans.” *The New York Times*. 8/30/01.

“Evolution Revolution.” *Wired*, January 1997.

“Fertility Ethics Authority Approves Sex Selection.” *The New York Times*. 9/28/01. Section A, page 16.

“Five Forces Transforming Communications.” *The Futurist*, Sep-Oct 2001.

“Fliers’ Private Lives Face New Screening.” *The International Herald Tribune*. 2/2/02.

“Foreign Policy, Values and Globalisation.” *Financial Times*. 1/31/02.

“Four Visions of the Century Ahead: Will it be Star Trek, Ecotopia, Big Government, or Mad Max?” *Robert Costanza*.

“A Globe Clothing Itself With a Brain.” *Wired*. 1995.

“Health Aid for Poor Countries.” *The New York Times*. 1/3/02.

“IBM creates a Tiny Circuit Out of Carbon.” *The New York Times*, August 27, 2001.

“In the Next Chapter, Is Technology an Ally?” *The New York Times*. 9/27/01. Section G, page 1.

“Liquid Logic.” *Wired*. September 2001.

“Living Under an Electronic Eye.” *The New York Times*. 9/27/01. Section G, page 1.

“Mr. Order Meets Mr. Chaos.” *Foreign Policy*, May-Jun 2001.

“On the Threshold: Environmental Change as Causes of Acute Conflict.” *International Security*, 1991.

“Scientists Find That Tiny Pipes Offer Big Payoffs.” *The New York Times*.” 1/1/02.

“Sometimes the Luddites are Right.” *The Futurist*, Sep-Oct 2001.

“Surveillance: From ‘Big Brother’ to Safety Tool.” *The New York Times*.” 12/6/01.

“Technical Glimpses from the Future: Scanning the Science Press.” *Futures Research Quarterly*, Summer 2001.

“The CIA Widens Its Domestic Reach.” *The New York Times*. 1/20/02.

“The Faceless Enemy.” *The New York Times*. 10/14/01. Section 7, page 11.

“The Increase in Chip Speed is Accelerating, Not Slowing.” *The New York Times*. 2/4/02.

“The Recycled Generation.” *The New York Times Magazine*, January 30, 2000.

“The Top Ten Technologies for the Next 10 Years.” *Exploring Your Future*, World Future Society, 2000.

“Threat of National ID.” *The New York Times*. 12/24/01.

“Touch of Evil.” Reviewed by Jeff Stein. *The Washington Post*. 10/21/01. Book World Section, page T05.

“What’s Next?” *Popular Science*, Summer 2001.

“Why the future doesn’t need us.” *Wired*, April 2000.

“Will Globalization Go Bankrupt?” *Foreign Policy*. Sept/Oct 2001.

#### **Other:**

David Rejeski. Slide Presentation “The Changing Environment for Governance.”  
<http://wwics.si.edu/mediaguide/rejrschint.htm#plan>

Leon Fuerth, Annual Shapiro Lecture, “*Revisiting the End of History, the Coming of the New Historical Era*,” November 6, 2001.  
<http://www.gwu.edu/~elliott/news/transcripts/shapiro.html>

Leon Fuerth, Annual Shapiro Lecture, “*Networking and the Future of Democracy: Mastering the Future Before it Masters Us*,” November 21, 2002.  
<http://www.gwu.edu/~elliott/news/transcripts/shapiro1.html>