Here is the draft syllabus. Best -- Dave Petraeus
I. Course Description

This seminar will seek to answer the question, "Are we on the threshold of the new (North) American decade(s)?" To do so, we will: survey the global economic situation; examine the ongoing energy, manufacturing, life sciences, and information technology "revolutions" in the United States; assess the implications each revolution has for the U.S. and the global economy; and determine the policies, practices, regulations, and laws needed to enable the U.S. to capitalize on the opportunities presented by the revolutions and thereby to contribute to the global economic recovery from the Great Recession.

II. Course Expectations and Requirements

This course is a undergraduate level discussion seminar for students interested in understanding how well-designed public policy can enable (North) America to capitalize on the tide of science and technology revolutions that will shape the coming decade(s). The focus of the course will be on the assigned readings, seminar discussions, written assignments, and oral presentations.

Student participation in the seminar and discussion groups will substantially enrich the learning experience. Effective class participation requires that students complete the assigned readings before coming to class. Students are encouraged to ask questions, share their insights, and treat their classmates' participation with professional courtesy.

III. Grading

- Seminar Participation: 20%
- Discussion Group Participation: 20%
- Policy Memo I – Policy Recommendation: 20%
- Policy Memo II – National Strategy: 40%

IV. Class Schedule

Please note that the schedule below may change to accommodate student interest. We will do our best to give advance notice of any changes.

Week 0 [class date, approx. 8/28-9/6]: Introduction and Overview
- Introduction to the main ideas of the course
- Overview of course requirements, presentation schedule

Readings: Op-Ed by Petraeus and O’Hanlon
**Week 1 [class date, approx. 9/9-13]: State of the Global Economy I**

- The Great Recession
- Economic growth projections for the short-term and long-term
- Reasons for optimism and pessimism for (North) America
- The global drivers of growth

**Readings:** Please list these in the order that we want them to read the items; i.e., first the big picture – the Great Recession and the global situation, etc., as listed logically above...

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<th>Articles/Pages</th>
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**Week 2 [class date, approx. 9/16-20]: The Energy Revolution I**

- Global energy resources and consumption
- Energy and the environment, climate change
- Energy security and geopolitics
- Might want to add an overview of oil and gas and nuclear and coal and alternatives for the U.S. See Vivek C.

**Readings:**

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<th>Description</th>
<th>Source</th>
<th>Pages</th>
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<tbody>
<tr>
<td>1</td>
<td>Newell, Richard and Stuart Iler, “The Global Energy Outlook” in.</td>
<td>all</td>
<td>36 pages</td>
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130 pages
<table>
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<tr>
<th></th>
<th>Title</th>
<th>Author/Source</th>
<th>Pages</th>
<th>Notes</th>
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<tbody>
<tr>
<td>4</td>
<td>Yergin, Daniel. The Prize. 2003.</td>
<td>Ch. 26, 29</td>
<td>47 pages</td>
<td></td>
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<tr>
<td>6</td>
<td>Intergovernmental Panel on Climate Change. Summary for Policyholders. 2007.</td>
<td></td>
<td>pp. 3-22</td>
<td>20 pages</td>
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<tr>
<td>7</td>
<td>Nordhaus, William. A Question of Balance: Weighting the Options on Global Warming Policies</td>
<td></td>
<td>Ch. 1</td>
<td>29 pages</td>
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**Week 3 [class date, approx. 9/23-27]: The Energy Revolution II**

- Shale gas and liquefied natural gas exports
- Keystone XL

**Readings:**

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<th>Author/Source</th>
<th>Pages</th>
<th>Notes</th>
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<tbody>
<tr>
<td>5</td>
<td>Darmstadter, Joel and Alan Krupnick. “Putting Politics Aside: The Consequences of the Keystone XL Rejection.”</td>
<td><a href="http://www.rff.org/News/Features/Pages/Putting-Politics-Aside-The-Consequences-of-the-Keystone-XL-Rejection.aspx">Website</a></td>
<td>2 pages</td>
<td></td>
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Week 4 [class date, approx. 9/30-10/1]: Discussion Groups. Need to give more info here...

Week 5 [class date, approx. 10/7-11]: The Life Science Revolution I

- Scientific developments and the advancing frontier
- Genetic sequencing
- Synthetic biology and the integration of engineering and the life sciences
- Stem cells

Readings:

   8 articles 34 pages

   pp. 1 – 12 12 pages

   11 pages

   2 pages

   http://www.genome.gov/Pages/About/vision.pdf
   13 pages

   2 pages

Week 6 [class date, approx. 10/15-18]: The Life Science Revolution II

- Drug development and biosimilars
- Personalized medicine and targeted therapies
- Vaccines
- Ethical issues

Readings:
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<th>Author(s)</th>
<th>Pages</th>
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We obviously need to add more to the readings above, but this is my weakest area...

### Week 7 [class date, approx. 10/21-25]: Discussion Groups

**Week 8 [class date, approx. 10/28-11/1]: The Advanced Manufacturing Revolution I**
- The role of manufacturing in economic growth
- Global trends in manufacturing
- Advanced manufacturing technologies
- Good topics, I think...

**Readings:**


### Week 9 [class date, approx. 11/4-8]: The Advanced Manufacturing Revolution II
- Labor policy, offshoring, *outsourcing*, and robotization
- Securing the manufacturing talent pipeline and the potential of immigration reform
- Industrial ecosystems and the business climate
### Readings:

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### Week 10 [class date, approx. 11/11-15]: The Information Technology Revolution

- Big data and cloud computing
- Wireless, the rise of mobility, and the telecom industry
- Cybersecurity

### Readings:

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<th>Page(s)</th>
<th>Total Pages</th>
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<tbody>
<tr>
<td>3</td>
<td>BCG. <em>The Future of Telecommunications.</em> 2010.</td>
<td>pp. 1 – 7</td>
<td>7 pages</td>
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### Week 11 [class date, approx. 11/18-22]: Discussion Groups **should we do a second IT revolution session?**

### Week 12 [class date, approx. 11/25-27]: Synthesis and Conclusions

- Cross-pollination between the “revolutions”
- Strategies for communicating with the public and advising policymakers
- Where do we go from here?
- We need to think about readings for Week 11; important week... could be fun, too!
Week 13 [class date, approx. 12/2-6]: Student Presentations

Week 14 [class date, approx. 12/9-13]: Student Presentations
V. Discussion Groups
During class at three points in the semester, the teaching assistants will lead a discussion group focused on a specific case study related to the most recent lectures. These classes will have additional required reading, but fewer total pages. Your participation on these days will be an integral part of your grade. Prior to these sessions, students are required to complete the additional reading and prepare a 1-page primer in preparation for focused discussion.

Week 4 – Energy Case
Possible topics: Keystone XL (e.g. Richard Vierot HBS case), shale gas (e.g. Rawi Abdelal HBS case; Noel Maurer HBS case), climate policy (e.g. Waxman-Markey debates)

Week 7 – Life Sciences Case
Possible topics: Stem cell research (e.g. Robert Simons HBS case), Gene therapy (e.g. Regina Herzlinger HBS case)

Week 11 – Manufacturing or Information Technology
Possible topics: Offshoring (e.g. Richard Vierot HBS case), telecommunication companies, big data

VI. Policy Memo I – Policy Recommendation
For the first policy memo, students will be assigned to argue a position to the White House Chief of Staff on a specific issue in one of the four “revolutions”. For this assignment students will draft a written memo and deliver a brief presentation to the class.

The memo should clearly lay out the context and importance of the issue, the recommended policy course of action, and the evidence and rationale for the recommended action. A list of possible topics follows, but students are also free to propose additional policy issues; however, topics not listed below must be approved by the professor 2 weeks prior to your scheduled presentation.

In the first two weeks of the course, students will sign up for a day to give a 7 minute presentation of their policy memo to the class (either Week 3, 6, 9, or 10). A written memo, 4-6 pages in length, double-spaced, 12-point Times New Roman, is also due on the day of the presentation.

Students should draw heavily from the assigned readings and class discussions, but should also feel free to consult additional credible sources. The policy memos should strive for realism in all manners except these memos should also include citations for all referenced material.

Suggested Policy Memo Topics
Energy
- Should the Keystone XL pipeline permit application be approved?
- Should exports of natural gas from North America be encouraged or discouraged?
- Should offshore oil drilling in the Gulf of Mexico be encouraged or discouraged?
- Should federal policy be adopted to reduce greenhouse gas emissions?
• Should federal renewable energy subsidies be extended?

Life Sciences
• The United States' unique insurance system has subsided drug development over the last half century. With the advent of healthcare reform and a changing payments system, how do you see the role of the United States as a driver of innovative therapies evolving? Should the rest of the world play a more active role?
• How should federal policy encourage the development of new drugs?
• Should federal policy encourage the proliferation of generic drugs?
• In the wake of the Affordable Care Act, could additional healthcare reform enable greater utilization of recent life sciences breakthroughs?
• What new ethical issues in the life sciences does federal policy need to address?

Advanced Manufacturing
• How can the federal government foster innovation in advanced manufacturing?
• Should the federal government implement immigration reform that specifically favors immigrants with manufacturing skills?
• How can federal policy increase the flow of domestic workers prepared for advanced manufacturing jobs?
• What should the role of the federal government be in fostering an “industrial ecosystem” and desirable climate for business?

Information Technology
• How can citizens control the disclosure and dissemination of their personal information in a digital age?
• Compare and contrast perceptions of usage of personal information/data when used by the government for security and law enforcement versus by companies for targeted advertising
• Identify three enduring issues or concerns of Internet governance that a Senate staffer drafting the charter for a “Federal Internet Commission” should be sure to enshrine in an authorizing statute?
• What role should the government play in subsidizing or mandating the development of a nationwide broadband infrastructure? Should there be different rules for wired and wireless? How many competitors are needed to ensure a competitive yet not-unnecessarily-duplicative marketplace?

VII. Policy Memo II – National Strategy

For the second policy memo, students will be tasked with developing a national strategy pertaining to a major area of science and technology (S&T) policy for a Presidential cabinet briefing. The memo should argue how well-designed federal public policy in the next 3-5 years could enable (North) America to capitalize on the possibilities afforded by the chosen S&T area.

The four S&T “revolutions” that the course focused on (energy, life science, advanced manufacturing, and information technology) may be chosen for the final project, but students should go beyond the assigned readings in developing their presentation by consulting additional resources. If students choose a different topic area, they must receive approval from the professor by November 1st.
The final presentations should first convey the opportunities and challenges in the chosen S&T area and then offer up to five near-term, practical policy recommendations. During the final two weeks of the semester, students will give a 20-minute presentation and submit a 12-15 page, double-spaced, 12-point Times New Roman memo. 😊