ESD.10   Introduction to Technology and Policy
Team-based Term Project Guidelines
Fall 2006

For your term project for this class, you will conceive, research, and write a study of an area of interest in science and technology policy. You will work in groups of 4-5 students. The reports will be based on the format and process of the National Research Council (NRC), the leading source of advice to the US Government and the science and technology community, and supplemented with views and analysis techniques learned in ESD.10. Throughout the project, the structure of the assignment will help you simulate the way studies are executed in the National Research Council. Thus, one useful bi-product of this experience is learning about the NRC study process. The term project is also your opportunity to synthesize what you will learn over the course of this semester and apply it to a real world problem.

Note: Unless otherwise noted, assignments are due by the beginning of class on the date designated in parentheses.

1. Introduction to projects, team assignments (9/6)
The lecture on September 6th will introduce the process to students, give some guidelines for choosing a topic and getting started, and get the groups together in class for the first time.

2. Contact NRC program managers for ideas, research the issues (9/13, 9/15)
At the NRC, studies are done based on a perceived need in a particular topic area. To choose a study topic, each group will first need to develop an understanding of the important issues in their assigned subject area. You should contact the NRC program manager for your relevant subject matter, and inquire about potential project ideas (we may suggest other people to contact as well). Every NRC program manager has a list of ideas in mind that they would like to see done. We also recommend reading popular and trade press articles in your subject area. Students will then select from these ideas and develop them further. The research on the final projects, then, is both relevant and undone – the final reports will be a genuine contribution!

Note: Several groups may wish to contact the same NRC program manager or other popular expert. To prevent overwhelming these gracious outside sources of information with multiple requests, we ask that you submit in class on Wednesday, Sep 13th the appropriate NRC program manager or expert name(s) that you wish to contact. We will then let you know which teams are contacting which NRC/expert people, and ask that teams work together and initiate only one contact per NRC/expert person on behalf of all teams interested in their project ideas. Contact should be initiated by Friday, Sep 15th.

Keep in mind approaching NRC program managers and outside experts is a delicate moment: How do you approach a busy person you don't know, explain to him or her what you are doing, and persuade them to help you? Compose your memo/email with care…Check out the class website on MIT Server for links to prior contact emails to use as models (under Materials, Final Project). You should also review the NRC library of previous study reports to help you understand the "anatomy of an NRC report." We will also provide examples of previous term projects for your reference, but keep in mind every project is unique by nature, and will look and feel somewhat different.

3. Develop and submit committee charges (12pm on 9/26)
NRC studies are not completed by standing NRC employees, but by outside experts who are brought in to serve for a finite time. In the NRC, the first step to initiating a study is to create a committee charge – a short, 1-page description of what the committee of experts should accomplish in the study. For your projects, each group will develop and submit two (2) of these committee charges. Please see examples from NRC reports available on their website. These charges are handed in to the teaching team, in order of preference, and we will then approve your choices so you may begin doing the research. We request two charges so that the teaching staff can select the project idea that best fits within the learning objectives of the class. Be careful to write two completely distinct project proposals. Please also hand in the responses from the NRC program managers and other experts to your queries about topics.

4. Select the committee (4pm on 10/6)
This part of the assignment mimics the process taken in the NRC to choose a committee of experts to complete the study. Groups select the experts to serve on their "virtual committee", allowing for a balance of expertise and backgrounds (e.g. industry/academic/government types). These can be, but do not have to be, people you are in contact with who can help you with your report. On the due date listed above, groups will hand in lists of experts with brief explanations of their expertise, and what you would expect them to contribute to the project.. The purpose of this assignment is both to follow the NRC model and to get the teams started on finding out who has written about their topic. This can help point the way to books, papers, and other interesting material on your topic. These experts may also be useful to actually contact to ask for information, review some of your ideas, etc.

5. Submit project proposal (10/16)
Each team should submit a 3 to 4 page proposal for your project. In the main body of the text include the background, context and scope for your problem, policy and technical considerations, key framing questions, as well as the methodology you plan to use to examine the problem. Write enough to let the teaching staff know that you have captured the salient issues of your topic. In an appendix include the following:
1. A list of resources – both sources you have used and sources you plan to study.
2. A Work Breakdown Structure (WBS) for your team. The WBS should detail the tasks required to complete the study and a plan for how the work will be divided within your team. Consider issues such as whether you will have one person serve as group facilitator or rotate the facilitation position, etc. Also consider issues of

how the group will resolve differing opinions on the team, and how it will deal with any team conflicts that arise.
3. A 1-page Outline of the Final Report.

6. 360° Team Evaluation (10/23)
This is an exercise designed to allow students to reflect on the strengths and opportunities for improvement of themselves and their teammates. This feedback technique is based on those used by high-performance work organizations. Each student will evaluate themselves and each of their teammates for strengths as well as opportunities for improvement. Follow the template provided on the course website.

7. Project draft report and executive summary (11/6)
On the due date above, groups will submit their rough draft of the final report. These should be close to the final length, and have all of the major sections worked on. The teaching team will then read through the reports and give feedback shortly thereafter.

8. Outside feedback on executive summaries (11/22)
When the executive summaries are completed, they should be sent to people who are experts in the field. These can be people at MIT or elsewhere who agree to read the executive summary and provide useful commentary. Keep in mind these experts are agreeing to give you some of their valuable time, and consider carefully how and when you will ask these experts to help you. Groups will submit these comments on the due date above, along with discussion about how they plan to respond to the reviewers' comments.

9. Final Presentations (12/4, 12/6)
Groups will present their findings in a specially-arranged forum during class time. Members of TPP, ESD, and the MIT community will be invited to attend. Presentations will be short – 15 to 20 minutes – and will be followed by a few minutes of questions and discussion.

10. Final paper submissions (4pm on 12/8 – note this is a Friday)
Groups will submit their final papers on the above due date, in polished form. These will be graded by the teaching team, and then posted on the ESD Working Paper website (http://esd.mit.edu/WPS/) for further use by the community. They should include an *annotated* bibliography – i.e. each entry explained for its quality, content, and relevance. We will also encourage you to submit them back to the National Research Council staff member who you spoke with about initial project ideas. They will be interested to see the final work!

11. Project Team Evaluation (12/11)
Each student will submit an evaluation of the contributions they and their teammates provided to the project. First, write 4 to 5 sentences describing your personal contribution to your team. Next, write 1 to 3 sentences for each of your teammates to describe their contributions. Make sure to include both tangible and intangible help that people provided.