**Course Approval Form**

For approval of new courses and deletions or modifications to an existing course.

More information is located on page 2.

### Action Requested:
- [X] Create new course
- [ ] Delete existing course
- [ ] Modify existing course

### Repeat Status:
- [X] Not Repeatable (NR)
- [ ] Repeatable within degree (RD)
- [ ] Repeatable within term (RT)

### Grade Type:
- [X] Regular (A, B, C, etc.)
- [ ] Satisfactory/No Credit
- [ ] Special (A, B, C, etc. +IP)

### Subject Code: **CEIE**  
### Number: **751**  
(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

### Title:

<table>
<thead>
<tr>
<th>Current</th>
<th>New</th>
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</table>

Environmental Sustainability and Entrepreneurship

### College/School:
- VS-IT&E

### Department:
- CEIE

### Submitted by:
- S. de Monsabert

### Ext: 3-1747  
### Email: sdemonsa@gmu.edu

### Effective Term:
- [X] Spring  
- [ ] Fall
- [ ] Summer

### Year:
- 2011

### Credits:
- [X] Fixed
- [ ] Variable

### Repeat Status:
- [X] Not Repeatable (NR)

### Schedule Type Code(s):
- [X] Lecture (LEC)
- [ ] Lab (LAB)
- [ ] Recitation (RCT)
- [ ] Internship (INT)

### Catalog Copy for NEW Courses Only (Consult University Catalog for models)

**Description**

Intended to help students develop innovative and sustainable ideas that satisfy social, environmental, and financial goals. Appropriate for students with a background in environmental engineering with interest in technical business practice that demonstrates social responsibility and environmental stewardship. Students develop concepts for green products and services and learn to: develop new green/sustainable ideas, estimate the market audience and impact of the concept, and estimate the costs of development and impacts on the environment.

**Indicate number of contact hours:**

| Hours of Lecture or Seminar per week: | 3 |
| Hours of Lab or Studio: | 0 |

**When Offered:**

| Fall | Summer | [X] Spring |

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**Special Instructions:** (detailed description of modification, add restrictions for major, college, or degree; cross-listed courses; hard-coding; etc.)

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**Approval Signatures**

Deborah J. Goodings  
11/23/2009

Department Approval Date

College/School Approval Date

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

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**For Graduate Courses Only**

Graduate Council Member

Provost Office

Graduate Council Approval Date

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**For Registrar Office’s Use Only:** Banner Catalog  
revised 10/7/09
Syllabus for CEIE 751
Environmental Sustainability and Entrepreneurship

Course Instructor: Sharon deMonsabert
Program of Civil, Environmental and Infrastructure Engineering
George Mason University
4400 University Drive, MS 6C1
Fairfax, VA 22030-4444
Science and Technology II, Room 407

Texts:

Course Objective: This course is intended to help students develop innovative and sustainable ideas that satisfy social, environmental, and financial goals. The material is intended for graduate engineering and science students with a background in environmental engineering who would like to develop a technical business practice that demonstrates social responsibility and environmental stewardship. The idea is to enable students to understand the importance of enterprise goals that incorporate sustainable design and development practices and to instruct students how to bring their environmentally and socially oriented concept to reality. Students are introduced to concepts of technical development of green products and services. Development of enterprise goals that meet the triple bottom line as well as an execution strategy will be covered in this course. Students will learn how to: (1) develop a new green/sustainable idea, (2) identify the opportunities associated with their sustainable idea, (3) estimate the market audience and impact of the concept, (4) estimate the costs of development and impacts on the environment, (5) promote their concept in an environmentally sound and economical manner, and (6) how to compete for financing of sustainable projects.

Grades: 50% Homework and class presentations (see attached handout)
30% Business Concept - Written
20% Business Concept - Oral
<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>Introduction to Entrepreneurship and Sustainability</td>
<td>Think Better, Parts 1 and 2</td>
</tr>
<tr>
<td></td>
<td>Creating a Green Business</td>
<td></td>
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<td></td>
<td>Self Evaluation – How green are you? How entrepreneurial are you?</td>
<td></td>
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<tr>
<td>Class 2</td>
<td>Thinking Out of the Box</td>
<td>Think Better, Parts 3 and 4</td>
</tr>
<tr>
<td>Class 3</td>
<td>Identifying Sustainable Business Opportunities</td>
<td>The Green Collar Economy Selected Readings</td>
</tr>
<tr>
<td></td>
<td>The Successful Green Business</td>
<td></td>
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<tr>
<td>Class 4</td>
<td>Legal Constraints/Intellectual Property</td>
<td>The Green Collar Economy Selected Readings</td>
</tr>
<tr>
<td></td>
<td>Good Business Planning</td>
<td></td>
</tr>
<tr>
<td>Class 5</td>
<td>Identifying the Target Market/Sector</td>
<td>The Green Collar Economy Selected Readings</td>
</tr>
<tr>
<td>Class 6</td>
<td>Estimating the Development and Environmental Impact</td>
<td>The Green Collar Economy Selected Readings</td>
</tr>
<tr>
<td>Class 7</td>
<td>Promoting Your Green Idea</td>
<td>Made to Stick, Introduction</td>
</tr>
<tr>
<td>Class 8</td>
<td>Capital Requirements</td>
<td>Made to Stick, Chapters 1, 2</td>
</tr>
<tr>
<td>Class 9</td>
<td>Financial Planning</td>
<td>Made to Stick, Chapters 3, 4</td>
</tr>
<tr>
<td>Class 10</td>
<td>Guest Lecture – A successful green business. What you need to know.</td>
<td>Made to Stick, Chapters 5, 6</td>
</tr>
<tr>
<td>Class 11</td>
<td>Bootstrap Developments</td>
<td>The Successful Business Plan</td>
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<tr>
<td>Class 12</td>
<td>Group Presentation Rehearsals</td>
<td>The Successful Business Plan</td>
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<tr>
<td>Class 13</td>
<td>The Green Collar Economy – Lessons Learned</td>
<td>The Successful Business Plan</td>
</tr>
<tr>
<td>Class 14</td>
<td>Group Presentations</td>
<td>The Successful Business Plan</td>
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</table>
Homework
Late work will not be accepted. If you are unable to attend class to give your oral presentation, please make arrangements to hand in your written work on the date assigned. You must schedule another presentation time with the course instructor (in advance).

Assignment 1 – The Sustainable Idea
Prepare a brief oral presentation that describes a new and innovative sustainable business idea. This can be a technical innovation (new energy source, GHG sink, water treatment innovation, healthy building, deconstruction and materials reuse innovation, etc.) or an improved green business concept (optimal storage of data to reduce electrical overhead, improved office recycling methods, green procurement strategies, etc.) or any other idea that will promote an environmentally, socially and economically sustainable practice. Do not be limited by conventional barriers. To accomplish sustainability we must think and behave in untraditional manners. Use your “out-of-the-box” and “green” knowledge and skill set. Be prepared to share your green idea in class. Your idea may form the basis for the sustainable business concepts will be developed in the course. Limit your presentation to one idea. You must present your idea in less than 5 minutes. This is a graded assignment. Points will be deducted for presentations that are longer than 5 minutes. You will be graded on your ability to clearly present your idea. Be creative in your idea as well as your presentation format. No written material will be accepted.

Assignment 2 – Biography of a Successful Sustainable Entrepreneur
Prepare a brief written report not to exceed 5 pages, double-spaced and a 5-minute oral presentation that describes an individual that has developed a sustainable business practice. The following must be addressed in both your written report and oral presentation:
- Discuss the personal traits that contributed to the success of this individual.
- Describe the green business venture that this person initiated.
- How well suited was this individual to their business venture?
- What skills, abilities, and knowledge do/did they have?
- How did their education and work experience prepare them for their venture?
- What was their motivation?
- What impact has this sustainable practice had on their neighborhood, region, world?
Your oral report will be presented in class. Written reports will also be submitted.

Assignment 3 – Selecting a Target Market for Your Green Business Concept
Describe in 5 pages or less (double-spaced) a step-by-step approach to determining the size of the market for your business concept. Answer the following question:

How will you determine the target market for your business concept?

Make sure that you customize the approach for your sustainable business concept. You must indicate not only what you will do but how you will do it. For example, don’t just say: “I will determine who the primary customers are for my green product/services.” You must indicate how you will determine who the primary customers are, how many there are, how many will implement your concept, and what costs they are willing to incur, etc. Remember, it is important to be sustainable in all aspects of your business including the identification and development of the market for your product and service. In other words, your step-by-step approach to the market estimation must be a sustainable approach.
**Assignment 4 – Start-up Funding and Endorsement**

How much money will be needed to start-up your green business idea? Who are the primary organizations that may fund your plan? What organizations support sustainable development? Do they offer “free” services that you may take advantage of? What are they and how will you use them? Describe in 1-page succinctly how you plan to obtain the funding to put your sustainable business plan into action. Obtain one endorsement from an influential individual. Discuss who has endorsed your plan and how this endorsement will help you.

**Assignment 5 – The Green Collar Economy**

Read *The Green Collar Economy*. Prepare a list of ten “lessons learned” from this text. Prioritize your list (1 being most important). Present your ten lessons learned to the class. Briefly discuss your list and prioritization. Discuss how the author’s ideas relate to sustainability and the development of your green business concept. In what ways did this book influence the development of your business concept? Present your findings in class.

**Class Project**

**The Environmentally Sustainable Enterprise**

**Background:**

Business plans and environmental modeling have several things in common:

1. They are generally poor indicators of success
2. They are expensive and time consuming to develop
3. They rely upon expert knowledge to attain credibility
4. They are useful when trying to transition an environmentally sustainable business opportunity into a practice that will preserve natural resources, promote environmental stewardship, be socially responsible, and economically viable

The objective of this assignment it to analyze your proposed environmentally sustainable business concept and address the factors critical to the success of your endeavor: the people, the opportunity, the context, the risk/reward, the environmental contribution, and the environmental impact. Prepare a document that details your green practice and addresses these issues. Make your document creative. Sell your idea. You may publish your document in whatever format you desire. Be creative. Be resourceful. Be sustainable.

Advice is important when starting your first venture. To improve your business concept, develop a list of three individuals who are in a position to critique your concept. Why did you select this group to review your ideas? How can they help you? Have your plan reviewed and critiqued by these individuals. Design a review form for the reviewers and collect feedback from them regarding your business concept. Provide copies of the completed form as appendices in your concept paper. Analyze and incorporate the feedback into your strategy. You do not have to take all of their advice; however, you should be prepared to defend your ideas and have solid reasons for not incorporating their suggestions.
Assignment:

Groups will consist of between one and four individuals. Your group will prepare the following:

1. **One copy of your business plan.** You may make it any length or format that you like. Please include copies of your completed critiques (no less than 3) in an appendix. Your document should include an executive overview that defines the purpose of the document and its intended audience. Discuss the sustainable industry and the nature of your products/services. What makes it environmentally sustainable? Present your market research (market size and trends). Show the estimated market share and projected implementations. What is your competition? What is your market advantage? Present your financial analysis. Project your operating costs and expenses. What is the impact of your product/service on the environment? What is the return on investment for your concept? How will you finance the venture? What is your marketing plan? Who is your technical/management team? Stakeholders?

2. **Oral presentations.** An independent panel of successful environmental entrepreneurs will evaluate your concept and provide you with feedback.