## Course Syllabus

<table>
<thead>
<tr>
<th>Course</th>
<th>ENMG 5300: Environmental Accounting</th>
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<tbody>
<tr>
<td><strong>Term</strong></td>
<td>Spring 2013</td>
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</tbody>
</table>
| **Instructor** | Name: Mark Lenox, P.E.  
Phone: Home: 573-308-1382, cell: 573-578-1383  
 work: 573-596-0131 x63724  
Email: marklenox15@webster.edu  
mark.h.lenox.civ@mail.mil |
| **Catalog Description** | This course covers corporate environmental accounting, activity based costing, federal, state, municipal accounting, and quality control. Topics also covered will include financial and economic implications of pollution prevention, compliance projects, and procedures required for environmental accounting. Case studies and end-of-the-course projects will be used explore these topics. |
| **Prerequisites** | None. |
| **Course Level Learning Outcomes** | An environmental accounting class offers several potential benefits to students of environmental management to:  
- Provide a foundation for studying and understanding environmental accounting and environmental costs and integrating these costs into decision-making.  
- Comprehend roles and responsibilities in environmental accounting through on-line research, lectures, discussions, case studies, a course project, and practical exercises.  
- Improve student information and communication skills.  
- Prepare students for subsequent studies and work in environmental management. |
| **Materials** | No textbook. Material will be assigned during class. |
| **Grading** | A | 93.4-100% |
| | A- | 90-93.3% |
| | B+ | 86.7-89.9% |
| | B | 83.4-86.6% |
| | B- | 80-83.3% |
The GRADUATE catalog provides these guidelines and grading options:

- **A/A–**: Superior graduate work
- **B+/B/B–**: Satisfactory graduate work
- **C**: Work that is barely adequate as graduate-level performance
- **CR**: Work that is performed as satisfactory graduate work (B– or better). A grade of "CR" is reserved for courses designated by a department, involving internships, a thesis, practicums, or specified courses.
- **F**: Work that is unsatisfactory
- **I**: Incomplete work
- **ZF**: An incomplete which was not completed within one year of the end of the course. ZF is treated the same as an F or NC for all cases involving G.P.A., academic warning, probation, and dismissal.
- **IP**: In progress
- **NR**: Not reported
- **W**: Withdrawn from the course

### Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Course Project</td>
<td>22%</td>
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<tr>
<td>Final Examination</td>
<td>35%</td>
</tr>
<tr>
<td>Quizzes &amp; Homework</td>
<td>43%</td>
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### Homework

Homework is listed below in the syllabus. There are 5 homework assignments.

**Article Reviews**

There are a total of 4 assigned article reviews. The article review should be no longer than 2 pages and must be properly referenced. Use a key phrase from the Internet source for cite (earthtimes, 1997) and full address and date and search engine in references. Do not just copy the text of the article and put it into the article review.

Paper Format: All papers should be typed, one and a half or double-spaced in 12-point Times or similar font, 1.5-inch margin on the left and 1 inch margins on all other sides. Typographical errors, spelling mistakes, and poor grammar must be corrected by careful proofreading. No cover sheet is required.

### Course Project

Locate a company that is open to work with you and will let you document the environmental regulations that are applicable to the company; describe the costs and benefits from the regulations; describe how the company accounts for these costs and uses Environmental Accounting in the decision making process at the Management Level. If the company you are
studying does not use an environmental accounting method, then you must provide a recommendation on how to implement and use environmental accounting practices. Course project will be graded on four areas:

<table>
<thead>
<tr>
<th>Area</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Applicable Regulations</td>
<td>5</td>
</tr>
<tr>
<td>Costs &amp; Benefits</td>
<td>6</td>
</tr>
<tr>
<td>Environmental Acctng</td>
<td>7</td>
</tr>
<tr>
<td>Presentation</td>
<td>4</td>
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</table>

Present the information in class during week 8. There is no written report required; all of your information should be included in your presentation.

**Policy Statements:**

**University Policies**

University policies are provided in the current course catalog and course schedules. They are also available on the university website. This class is governed by the university’s published policies. The following policies are of particular interest:

**Academic Honesty**

The university is committed to high standards of academic honesty. Students will be held responsible for violations of these standards. Please refer to the university’s academic honesty policies for a definition of academic dishonesty and potential disciplinary actions associated with it.

**Drops and Withdrawals**

Please be aware that, should you choose to drop or withdraw from this course, the date on which you notify the university of your decision will determine the amount of tuition refund you receive. Please refer to the university policies on drops and withdrawals (published elsewhere) to find out what the deadlines are for dropping a course with a full refund and for withdrawing from a course with a partial refund.

**Special Services**

If you have registered as a student with a documented disability and are entitled to classroom or testing accommodations, please inform the instructor at the beginning of the course of the accommodations you will require in this class so that these can be provided.

**Disturbances**
Since every student is entitled to full participation in class without interruption, disruption of class by inconsiderate behavior is not acceptable. Students are expected to treat the instructor and other students with dignity and respect, especially in cases where a diversity of opinion arises. Students who engage in disruptive behavior are subject to disciplinary action, including removal from the course.

**Student Assignments Retained**

From time to time, student assignments or projects will be retained by The Department for the purpose of academic assessment. In every case, should the assignment or project be shared outside the academic Department, the student's name and all identifying information about that student will be redacted from the assignment or project.

**Contact Hours for this Course**

It is essential that all classes meet for the full instructional time as scheduled. A class cannot be shortened in length. If a class session is cancelled for any reason, it must be rescheduled.

<table>
<thead>
<tr>
<th>Course Policies</th>
<th>One individual from the Captain’s Career Course has access to the classroom and will be responsible for unlocking and locking the classroom for each class.</th>
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<tbody>
<tr>
<td>ABSENCES: F for 3 or more absences; C highest-grade possible after 2 unexcused absences</td>
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<thead>
<tr>
<th>Weekly Schedule</th>
<th><strong>Schedule of Required Readings, Class Preparations and Assignments, Lectures, Discussions, Student Presentations, Practical Exercises and Exams.</strong></th>
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</thead>
</table>
| **Week One:**   | • Introduction of the Instructor / Get Acquainted  
| | • Course Objectives  
| | • Review Syllabus  
| | • Review Homework Assignments  
| | • Review Course Project  
| | • Classroom Instruction:  
| | o ISO: International Organization for Standardization  
| | o QMS: Quality Management System  
| | o EMS: Environmental Management System  
| **Week Two:**   | • Nature and Scope of Environmental Accounting (EA)  
| | • Managerial Accounting and Business Management  |
Economy and the Environment
AT&T Case Study (Green Accounting)
Overview of Topics Covered during Web Based Instruction:
   o ABC: Activity Based Costing
   o TCA: Total Cost Accounting
   o P2: Pollution Prevention
   o LCA: Life Cycle Assessment

**Homework #1: Due NLT Beginning of class Week 3**

Answer the following Review Questions:
1. What kinds of information does a firm need to evaluate and choose among pollution abatement options? (1)
2. What time frame should be used for evaluating an abatement option? Explain. (1)
3. Explain what regulatory costs are and describe the different types of regulatory costs. (1)
4. What is environmental accounting and why was it developed? (1)
5. How did AT&T implement Environmental Accounting? (1)

**Week Three:**
- Find an article to review dealing with Cost Allocation.
- Instruction on Applying Environmental Accounting to Cost Allocations
- Read the "Introduction to Activity Based Costing (ABC)" Internet online presentation located at [http://www.pitt.edu/~roztocki/abc/abctutor/index.htm](http://www.pitt.edu/~roztocki/abc/abctutor/index.htm) (Introduction to Activity Based Costing (ABC) Internet ABC online presentation by Nancy Roztocki).
- Read Environmental Accounting Case Studies: Environmental Cost Accounting for Chemical and Oil Companies: A Benchmarking Study (June 1997). This report summarizes an environmental cost accounting benchmarking study of five major U.S. and Mexican companies that are developing environmental accounting systems. The purpose of this study was to allow the company participants to discuss the form and functions of their environmental accounting systems and the uses for the cost information yielded by such systems. The University of
Houston’s Institute undertook this study for Corporate Environmental Management in partnership with the Business Council for Sustainable Development - Gulf of Mexico. (EPA-742-R-97-004, 60 pages). Click on [http://www.epa.gov/oppt/library/pubs/archive/acct-archive/pubs/bench.pdf](http://www.epa.gov/oppt/library/pubs/archive/acct-archive/pubs/bench.pdf) to access the Case Study.

**Homework #2: Due NLT Beginning of class Week 4**

Article Review on Cost Allocation article.

Answer the following Review Questions:

1. What is ABC? (1)
2. What does ABC provide to the Decision-Maker? (1/2)
3. What are the 5 steps of the ABC Process? (1)
4. What is Benchmarking and how does it differ from Best Practices? (1)
5. What is the major objective of the ABC Process? (1/2)
6. What were the environmental accounting systems of the 5 chemical and oil companies presented in the case study? (1)

**Week Four:**

- Find an article to review dealing with an Incinerator as a capital investment project.
- Instruction on [Applying Environmental Accounting to Capital Budgeting](#).
- Read the Total Cost Assessment (TCA) Methodology book located on the web at [TotalCostAssessmentMethodology.pdf](#). This report on a methodology to develop an objective and quantitative approach to total cost assessment (TCA), with practical applications in improving business and environment and health-related decisions is the first offering from a multi-national focus group formed by CWRT and Arthur D. Little, Inc., to develop an "industry standard" approach to TCA. Designed for internal managerial decision-making, the group's goal is to enhance capital project and product development cost estimating practices by focusing attention on the potentially hidden E & H costs and impacts.
- Read and take the "Total Cost Accounting course and Test" located at [http://teexcit.tamu.edu/tca/](http://teexcit.tamu.edu/tca/) (Total Cost Accounting on line course and test); forward the results of the test to the Instructor.

**Homework #3: Due NLT Beginning of class Week 5**

Article Review an incinerator project

Answer the following Review Questions:
1. What are the 7 steps of the TCA Methodology and describe each step? (1)
2. What does Eco-Efficiency mean? (1)
3. What are the objectives of the TCA Methodology? (1-1/2)
4. What is the best way to implement the TCA methodology? (1-1/2)

Week Five:
- Review an article on a Pollution Prevention (P2) topic.
- Instruction on Pollution Prevention (P2) and Valuing Potential Environmental Liabilities for Managerial Decision-Making
- Read Chapter 10-12, Pollution Abatement and Prevention and Pollution Prevention case studies, from the FREE textbook on the web: The Relationship Between the Economy and Environment by Eileen van Ravenswaay, Michigan State University http://www.msu.edu/course/prm/255/course_schedule.htm
- Read Environmental Accounting Case Studies: Searching for the Profit in Pollution Prevention: Case Studies in the Corporate Evaluation of Environmental Opportunities (April 1998) This paper, written by James Boyd of Resources for the Future, presents three case studies on the decision-making processes surrounding pollution prevention investments at three large chemical manufacturing organizations: Dow, Monsanto, and DuPont. The case studies illuminate significant challenges facing P2 that may need to be studied and addressed by policy makers and industry alike. The cases demonstrate, for example, that corporate organizational or accounting weaknesses are not always at fault for firms’ failure to adopt P2 alternatives. Instead, these particular projects foundered because of significant unresolved technical difficulties, marketing challenges, and regulatory barriers (EPA 742-R-98-005, 59 pages). Click on http://www.epa.gov/opptintr/acctg/pubs/paper2b.pdf to access the Case Study.

Homework #4: Due NLT Beginning of class Week 6

Article Review on a pollution prevention topic.

Answer the following Review Questions:
1. What are the major options for reducing waste in a firm’s production process? Give specific examples). (1)
2. What is Pollution Prevention and what are the major pollution prevention options? (1)  
3. Describe/explain the Pollution Prevention Act of 1990 (to include the goal, aim of business practices initiative and key factor in determining P2 feasibility). (1/2)  
4. Explain the difference between Environmental Liability and Potential Environmental Liability? (1/2)  
5. What are the 6 different types of Environmental Liabilities? (1)  
6. Describe the decision-making processes surrounding the P2 investments of Dow, Monsanto, and DuPont. (1)  

Week Six:  
- Find an article to review on Life Cycle Assessment.  
- Instruction on Applying Environmental Accounting to Process/Product Design.  
- Read Life Cycle Assessment (LCA)-A guide to approaches, experiences and information sources at [http://service.eea.eu.int/envirowindows/lca/content.htm](http://service.eea.eu.int/envirowindows/lca/content.htm)  

**Homework #5: Due NLT Beginning of class Week 7**  
Review of article on LCA.  
Answer the following Review Questions:  
1. What is Life Cycle Assessment and how is it conducted? (1)  
2. What are the limitations of using Life Cycle Assessment to make environmental policies? (1)  
3. What incentives do firms have to use Life Cycle Assessment?(1/2)  
4. Where did LCA come from? (1/2)  
5. What can LCA do for my business? (1/2)  
6. Can LCA help in product comparisons? (1/2)  
7. What is the LCA Tool? (1/2)  
8. What is a product’s Life cycle? (1/2)  

Week Seven:  
- PREPARE FOR COURSE PROJECT:  
  - On your own, review for FINAL EXAMINATION  

Week Eight:  
- Present COURSE PROJECT.  

Week Nine:
<table>
<thead>
<tr>
<th>Additional Information</th>
<th>The reading resources for this class are from a combination of materials handed out and materials on the Internet. Use these resources to construct your own textbook. Key books/resources include:</th>
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<tr>
<td>• The Environmental Management Accounting (EMA) international web site is located at <a href="http://www.emawebsite.org">www.emawebsite.org</a>. This web site is now the primary source of U.S. based EMA information from the U.S. EPA Environmental Accounting Project.</td>
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<td>• <em>The Relationship Between the Economy and Environment</em> by Eileen van Ravenswaay, Michigan State University, (FREE textbook on the web) located on web at <a href="http://www.msu.edu/course/prm/255/course_schedule.htm">http://www.msu.edu/course/prm/255/course_schedule.htm</a></td>
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<td>• Applying Activity Based Costing to Business Operations, Department of Defense, 6/9/95, located at <a href="http://www.c3i.osd.mil/bpr/bprcd/0201.htm">http://www.c3i.osd.mil/bpr/bprcd/0201.htm</a> (Using and Understanding Activity Based Costing)</td>
<td></td>
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<tr>
<td>• Total Cost Assessment (TCA) Methodology book written by Arthur Little, American Institute of Chemical Engineers Center for Waste Reduction Technologies located at <a href="http://www.epa.gov/opptintr/acctg/pubs/liabilities.pdf">Total Cost Assessment Methodology</a>.</td>
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<td>• <a href="http://yosemite1.epa.gov/ee/epa/eed.nsf/pages/homepage">National Center for Environmental Economics</a> Carries out research and analyses of the interactions and relationships between the economy and environmental pollution control.</td>
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<td>• <a href="http://www.epa.gov/opptintr/dfe/index.htm">Design for the Environment: Partnerships for a Cleaner Future</a> The Design for the Environment (DfE) Program helps businesses incorporate environmental considerations into the design and redesign of products, processes, and technical and management systems.</td>
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| **U.S. EPA Design for the Environment Approaches & Tools** | Information on approaches and tools used in the DFE program.  
  [http://www.epa.gov/opptintr/dfe/tools/tools.htm](http://www.epa.gov/opptintr/dfe/tools/tools.htm) |
| **Full Cost Accounting** | Making cost-effective and informed decisions about municipal solid waste programs requires access to a broad spectrum of information.  
  [http://www.epa.gov/fullcost/](http://www.epa.gov/fullcost/) |
| **Five FCA Principles** | FCA embodies several key concepts that distinguish it from standard accounting techniques.  
  [http://www.epa.gov/fullcost/princi.htm#5princpls](http://www.epa.gov/fullcost/princi.htm#5princpls) |