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ENVH 7233 - Environmental Exposure and Impact Assessment

Atin Adhikari

Georgia Southern University, Jiann-Ping Hsu College of Public Health, aadhikari@georgiasouthern.edu

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Georgia Southern University
Jiann-Ping Hsu College of Public Health

ENVH 7233– Environmental Exposure and Impact Assessment
Fall 2017

<u>Instructor:</u>	Atin Adhikari, M.Sc., Ph.D.
<u>Office:</u>	Hendricks Hall Room 2025
<u>Phone:</u>	912-478-2289
<u>E-Mail Address:</u>	aadhikari@georgiasouthern.edu
<u>Office Hours:</u>	Monday: 3:00 – 5:00 PM Wednesday: 9:30 AM – 12:30 PM Also by appointment
<u>Web Page:</u>	http://jphcoph.georgiasouthern.edu/
<u>Class Meets:</u>	Thursday 5:00 – 7:45 Building and room number: Information Technology Building, Room 2202

Prerequisites: Prerequisite(s): A minimum grade of "C" in PUBH 6533 or PUBH 6541; and ENVH 7231 or ENVH 7232; or permission of instructor.

Catalog Description: Introduces students to appropriate design, implementation, and analysis of primary environmental exposures and how they are influenced by public health ethics, equity and disparities. Specific topics covered include designing risk profiles; evaluating dose-response relationships; assessing the contribution of public health ethics, equity and disparities to environmental exposures; and analyzing field exposures of toxins.

Required Textbooks: Marriott, Betty Bowers. *Environmental Impact Assessment*. McGraw-Hill, 1997, Hardcover, 320 pages, ISBN 0-07-040410-0

Nieuwenhuijsen, Mark J. *Exposure Assessment in Occupational and Environmental Epidemiology*. Oxford University Press, 2nd Edition, 2015, ISBN: 9780199378784.

Supplemental Texts: Richards, Ira S. *Principles and Practices of Toxicology in Public Health*. Jones and Bartlett Publishers, 2014, Softcover, 522 pages, ISBN-13: 978-1-4496-4526-7

Canter, L.W. *Environmental Impact Assessment*. McGraw-Hill, Inc. 2nd Edition, 1996, ISBN 0-07-009767-4

Armstrong, Susan J. and Richard G. Botzer. *Environmental Ethics: Divergence and Convergence*. McGraw Hill, 3rd Edition, 2004, Softcover, 624 pages, ISBN-13:9780072838459

Additional readings will be assigned from the peer-reviewed literature to serve as a basis for discussions.

Environmental Health Sciences Concentration Competencies:

At the completion of this program the student will be able to:

1. Describe major environmental health hazards (physical, chemical and biological), and assess their genetic, physiologic, and socio-economic impacts on vulnerable and susceptible populations with special emphasis on rural and underserved communities.
2. Apply research ethics and current research principles, including hypothesis development, experimental design, and current research methodology, to the qualitative and quantitative measurement and analysis of environmental health hazards.
3. Apply the outcomes of environmental monitoring and environmental impact assessments to prevent, mitigate and/or forecast future exposures to environmental hazards and utilize this information to support or advocate for environmental health policy development.
4. Apply current health risk assessment methods, utilized by federal, state, and local regulatory programs, and non-governmental guidelines and authorities directed toward management of environmental hazards and provide technical assistance and leadership to address the concerns of communities including environmental justice and equity.
5. Apply current research methodology for community based intervention studies, assessing exposure to environmental factors as well as for the identification, quantification, and understanding of potential adverse effects on human health and ecosystems that might result from complex exposure to environmental stressors.
6. Communicate environmental health hazards and associated health outcomes to community, stakeholders and professional audiences through oral and written communication and community-based intervention studies.

Course Learning Objectives: The numbers in parenthesis correspond to the competency numbers obtained from this course (from the list above) satisfied by the course learning objectives.

As a result of this course the student should be able to:

1. Apply the basic principles and tools of environmental risk assessment to identify the sources and fate of representative environmental hazards and impacts on communities upon exposure to adequate dose of the hazards (1, 2).
2. Analyze the effectiveness of principles of environmental hazard prevention as related to community concerns regarding environmental hazards (3, 5).
3. Analyze the effectiveness of principles of environmental hazard control as related to

- community concerns regarding environmental hazards (3, 5).
4. Analyze the effectiveness of tools of environmental hazard prevention as related to community concerns regarding environmental hazards (3, 5).
 5. Evaluate the factors impacting the development of environmental policy (4).
 6. Describe the impact of land use on healthy environments and behaviors (4).
 7. Describe the integration of environmental health into land use planning and design (4).
 8. Investigate environmental conditions that may affect a community's health status (5).
 9. Analyze the effectiveness of tools of environmental hazard control as related to rural and urban community concerns regarding environmental hazards (5).
 10. Provide technical assistance and leadership to address the concerns of communities (6).
 11. Analyze the socio-economic and cultural factors that affect health problems influenced by environmental hazard exposure (6).

Overview of the Content to be Covered During the Semester:

Week/Class date	Topic	Readings	Assignment
1 08/17/2017	Welcome/Introduction Class organization and schedule	Syllabus	Acquire textbook
2 08/24/2017	Introduction to Exposure Assessment	Chapter 1 – Introduction to Exposure Assessment. M.J. Nieuwenhuijsen	Homework Assignment #2 #1 discussion presentation
3 08/31/2017	Exposure Assessment: Indirect Methods	Chapter 2 – Questionnaires Chapter 3 - Modeling M.J. Nieuwenhuijsen	Homework Assignment #3 #2 discussion presentation
4 09/07/2017	Exposure Assessment: Direct Methods	Chapter 5 – Personal Monitoring Chapter 11 – Biological Monitoring M.J. Nieuwenhuijsen	Homework Assignment #4 #3 discussion presentation
5 09/14/2017	Environmental Ethics and Equity	Handouts; Guest lecture of Dr. Shah; Unnatural Causes	Class debate and discussion
5 09/21/2017	Environmental & Ecological Exposure Risk Assessment	Chapter 21 – Environmental & Ecological Risk Assessment Gochfeld & Burger (pdf)	Homework Assignment #5
6 09/28/2017	Midterm Examination Exposure Assessment and Environmental Risk Assessment	Textbook, handouts and homework assignment descriptions	Get ready for Midterm Exam
7 10/05/2017	Introduction to Impact Analysis: Foundation; Environmental Documents and Processing; Scoping and Agency Coordination; and Alternatives	Chapters 1-4 – Environmental Impact Assessment: A Practical Guide Betty Bowers Marriott	Find your DEIS
8 10/12/2017	Impact Analysis: Land Use and Development	Chapter 5 Betty Bowers Marriott	Homework Assignment #8 #4 discussion presentation

9 10/19/2017	Impact Analysis: Social and Neighborhood Effects; Economic Factors; Relocations; and Traffic and Transportation	Chapters 6-9 Betty Bowers Marriott	
10 10/26/2017	Impact Analysis: Historic and Archaeological Resources; and Visual Resources	Chapters 12-13 Betty Bowers Marriott	Homework Assignment #10 Group discussion presentation (extra)
11 11/02/2017	Impact Analysis: Air Quality; and Noise	Chapter 14-15 Betty Bowers Marriott	#5 discussion presentation
12 11/09/2017	Impact Analysis: Geology and Soils; and Water Resources	Chapters 16,18 Betty Bowers Marriott	#6 discussion presentation
13 11/16/2017	Impact Analysis: Floodplains and Coastal Areas; Wetlands; and Vegetation and Wildlife	Chapters 19-21 Betty Bowers Marriott	Homework Assignment #13 Group discussion presentation (extra)
14 11/23/2017	Thanksgiving: no classes		
15 11/30/2017	Impact Analysis: Environmental Health and Public Safety & Comparative Evaluation	Chapter 17 & Chapter 22 Betty Bowers Marriott	Homework Assignment #14 Group discussion presentation (extra); submit your final DEIS report
17 12/07/2017	Final Examination		

Samples of your work may be reproduced for search purposes and/or inclusion in the professor's teaching portfolio. You have the right to review anything selected for use, and subsequently ask for its removal.

Course Credit: 3 credit hours

Course Structure and Instructional Methods: This is an in-class course with sessions scheduled weekly. Each class will be a mixture of a lecture, discussion of the class topic and issues of concern and interest to the students pertinent to the topic of the class. All course notes, assignments, and other supplementary materials will be available in **Folio**. It is the student's responsibility to read and understand all the course materials and complete necessary written homework assignments, quizzes, and exams in order to successfully complete the course.

Each student is expected to come prepared for the class by reading recommended materials; several unannounced quizzes will be administered during the semester at the beginning class and/or after the lecture and discussions to assess the level of student preparedness for the class and learning efficiency. Quiz points vary from 5 to 15 points.

The course is divided into Learning Weekly Learning Modules. Each learning module covers a particular topic of the class and is associated with a chapter(s) in your text book(s). Each module posted in Folio will consist of course notes, assignment instructions, and reading and supplemental materials related to the topic of the module. The lecture notes will be posted after the class. 10% points will be deducted for all late submissions of assignments.

Required Course Work:

I. Discussion of a peer-reviewed article.

During the first part of the semester each student (study group) will be presenting one peer-reviewed journal article relevant to the topic of the class discussion. The presentation can be done in the form of a round-table discussion or a power-point presentation. The role of the discussant is to inform their classmates about published study and its results, and then to discuss the contribution of the study to our overall knowledge and information and to the state-of-the-art of the discipline of environmental and/or occupational exposure assessment. The presenter should lead the class discussion by analyzing the strengths and weaknesses of the article and by offering his/her own opinions and then ask classmates to share their feelings and ideas about the findings presented and their relevance to the learning goals of the current class. The discussion must be concluded by Q&A session; each discussion leader shall prepare at least three questions addressing the topic and the results of the article presented, its contribution to the field and its relevance to other specific disciplines of environmental health science and public health in general. The instructions for preparing your presentation and grading rubrics will be provided. This assignment is worth 15 points

II. DEIS analysis paper.

1. By September 29, 2017, find a Draft Environmental Impact Assessment (DEIS) of interest to you. Look for small or middle-size projects on a local scale (big projects require extended environmental impact assessment and the documents can be thousands of pages long). If you can't find one, please consult me so we can find a suitable DEIS that fits your interests and is not too long. Every student shall have a different DEIS.

2. During the second half of the semester, read the DEIS each week with particular attention to the Module topic highlighted that week. For example, Module 8 (Week 8) focuses on Land Use and Development. During the class meetings, I will ask you to discuss issues related to various topics which might be of particular interest to you and your classmates and pertinent to the evaluation stated in the specific DEIS you selected.

3. Each student (study group) will make a presentation/discussion of relevant topic from their DEIS to the class. The presentation shall adhere to the same recommendations as presentation of a peer-reviewed article described above. This graded presentation is worth 15 points.

4. To summarize your reading, you will each write a final paper discussing the strengths and weaknesses of the DEIS from the point of view of a staff member of an evaluating agency responding to a submitted DEIS, as a member of the public involved in the public hearing or as a subject matter expert who was requested to provide specific comments on the document as they relate to individual topics. Thus, it would be advantageous that you keep notes on each topic as you progress through the course so that they may be incorporated into your final paper.

5. The final paper analyzing the strengths and weaknesses of the DEIS you selected is due by 5 pm on November 30, 2017. A hard copy and electronic file must be submitted for evaluation. The instructions for preparing the paper, its length and formatting expectations, and grading rubrics will be provided.

Final Examination: Thursday, December 7, 2017, 5.00 - 7.45 pm, Building and room number: Information Technology Building, Room 2202. If you need special accommodations, please inform the instructor in advance.

Grading: Weighting of assignments for purposes of grading will be as follows:

<i>Category</i>	<i>Learning Objectives</i>	<i>Points (total effort)</i>
Quizzes	1,5,6,7,9	60 (12%)
Homework Assignments	1,4,6,7,9	120 (24%)
Midterm Examination	1,5,6	100 (20%)
Article and DEIS Discussions & Presentations	1-11	30 (15 each) (6%)
Strengths/Weakness DEIS Paper	1-11	50 (10%)
Environmental Ethics & Equity Discussion	1-11	25 (5%)
Class participation and discussions	1-11	15 (3%)
Final Examination	1,5,6,7,9	100 (20%)

The following point scale will be utilized in grading:

450-to-500 points (90%) A
400-to-449 points (80%) B
350-to-399 points (70%) C
300-to-349 points (60%) D

A cumulative total of 299 points or less will be considered as failing.

All grades above will be included for calculating your final grade.

All exams and assignments will be graded and returned promptly so that students may accurately calculate their grades at any point in time during the semester.

When extraordinary circumstances occur (e.g., serious illness, death in the family, etc.), and/or if you need additional time to satisfactorily complete any course requirement, please, consult with the instructor within a reasonable amount of time via e-mail.

Nota Bene: Extensions are not guaranteed and will be granted solely at the discretion of the instructor.

Academic Misconduct:

As a student registered at this University, it is expected that you will adhere to only the strictest standards of conduct. It is recommended that you review the latest edition of the *Student Conduct Code* book, as well as the latest *Undergraduate and Graduate Catalog* to familiarize yourself with the University's policies in this regard. Your continued enrollment in this course is an implied contract between you and the instructor on this issue; from this point forward, it is assumed that you will conduct yourself appropriately.

Academic integrity relates to the appropriate use of intellectual property. The syllabus, lecture notes, and all materials presented and/or distributed during this course are protected by copyright law. Students are authorized to take notes in class, but that authorization extends only to making one set of notes for personal (and no other) use. As such, students are not authorized to sell, license, commercially publish, distribute, transmit, display, or record notes in or from class without the express written permission of the instructor.

Plagiarism: "According to the Academic Dishonesty Policy of GSU, Plagiarism includes (but is not limited to):

- A. Directly quoting the words of others without using quotation marks or indented format to identify them.
- B. Using published or unpublished sources of information without identifying them.
- C. Paraphrasing material or ideas without identifying the source.
- D. Unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic material.

If you are accused of plagiarism by a JPHCOPH, the following policy, as per the Judicial Affairs website (<http://students.georgiasouthern.edu/judicial/faculty.htm>) will be enforced:

PROCEDURES FOR ADJUDICATING ACADEMIC DISHONESTY CASES

First Offense - In Violation Plea

1. If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, the professor should contact the Office of Judicial Affairs to determine if this is a first violation of academic dishonesty. The incident will be reported via the following website: <http://students.georgiasouthern.edu/judicial/faculty.htm>
2. If it is a first violation, the professor should talk with the student about the violation. **If the student accepts responsibility in writing and the professor decides to adjudicate the case, the following procedures will be followed:**

- a. The student will be placed on disciplinary probation for a minimum of one semester by the Office of Judicial Affairs.
- b. The student will be subject to any academic sanctions imposed by the professor (from receiving a 0 on the assignment to receiving a failing grade in the class).
- c. A copy of all the material involved in the case (Academic Dishonesty Report Form and the Request For Instructor to Adjudicate Form) and a brief statement from the professor concerning the facts of the case and the course syllabus should be mailed to the Office of Judicial Affairs for inclusion in the student's discipline record.

First Offense - Not In Violation Plea (student does not admit the violation)

If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, the professor should contact the Office of Judicial Affairs to determine if this is the first or second violation of academic dishonesty. The student will be charged with academic dishonesty and the University Judicial Board or a University Hearing Officer would

hear the case. If the student is found responsible, the following penalty will normally be imposed:

- a. The student will be placed on Disciplinary Probation for a minimum of one semester by the Office of Judicial Affairs.
- b. The student will be subject to any academic sanctions imposed by the professor.

Second Violation of Academic Dishonesty

If the professor and the Dean of Students agree that the evidence is sufficient to warrant a charge of academic dishonesty, and if it is determined this is the second violation, the student will be charged with academic dishonesty and the University Judicial Board or a University Hearing Officer would hear the case.

If the student is found responsible, the following penalty will normally be imposed:

- a. Suspension for a minimum of one semester or expulsion.
- b. The student will be subject to any academic sanctions imposed by the professor.

NOT RESPONSIBLE FINDING

When a student is found not responsible of academic dishonesty, the work in question (assignment, paper, test, etc.) would be forwarded to the Department Chair. It is the responsibility of the Department Chair to ensure that the work is evaluated by a faculty member other than the individual who brought the charge and, if necessary, submit a final grade to the Registrar. For the protection of the faculty member and the student, the work in question should not be referred back to the faculty member who charged the student with academic dishonesty. In the case of a Department Chair bringing charges against a student, an administrator at the Dean's level will ensure that the student's work is evaluated in an appropriate manner.

CONFIDENTIALITY

In accordance with provisions of the Family Educational Rights and Privacy Act of 1974 and the Georgia Open Records Act, any information related to a violation of academic dishonesty or the outcome of a judicial hearing regarding academic dishonesty, is prohibited and must be treated as confidential by members of the faculty.

Academic Handbook: Students are expected to abide by the Academic Handbook, located at <http://students.georgiasouthern.edu/sta/guide/>. Your failure to comply with any part of this Handbook may be a violation and thus, you may receive an F in the course and/or be referred for disciplinary action.

**University Calendar
For the Semester:**

The University Calendar is located with the semester schedule, and can be found at <http://www.collegesource.org/displayinfo/catalink.asp>.

Attendance Policy:

Federal regulations require attendance be verified prior to distribution of financial aid allotments. Attendance will not be recorded after this initial period.

Class Etiquette:

Turn off ring tones of your cell phones during the classes, discussions, and presentation meetings. Unless internet access is required for class activity, laptops, iPads and similar devices are not to be used during the class sessions. Class will start and end on time; eating in class is not allowed.

One Final Note:

The contents of this syllabus are as complete and accurate as possible. The instructor reserves the right to make any changes necessary to the syllabus and course material to accommodate potential guest lectures, current environmental events, and late breaking exposure assessment research. The instructor will make every effort to inform students of changes as they occur. It is the responsibility of the student to know what changes have been made in order to successfully complete the requirements of the course.