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Spring 2015

### ENVH 7237 - Risk Assessment and Communication

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**Georgia Southern University**  
**Jiann-Ping Hsu College of Public Health**

ENVH 7237– Risk Assessment and Communication  
Spring 2015

<b><u>Instructor:</u></b>	Marina E. Eremeeva, M.D., Ph.D., Sc.D.
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<b><u>E-Mail Address:</u></b>	<a href="mailto:meremeeva@georgiasouthern.edu">meremeeva@georgiasouthern.edu</a> (expect responses within 24 hr; no response after 6 pm on Friday and on weekends)
<b><u>Office Hours:</u></b>	Monday 2:00 pm – 5:00 pm Wednesday 10:00 am – 1:00 pm Any other time by appointment
<b><u>Web Page:</u></b>	<a href="http://jphcoph.georgiasouthern.edu/">http://jphcoph.georgiasouthern.edu/</a>
<b><u>Class Meets:</u></b>	Thursday 5:00 pm – 7:45 pm Information Technology Building, room 2202

**Course schedules can be found at:** <http://students.georgiasouthern.edu/registrar>

**Prerequisites:** ENVH7233 for MPH students specializing in Environmental Health Science, other students submit signed JPH COPH Academic Course override form.

**Catalog Course Description:**

Course introduces students to the qualitative and quantitative skills necessary to evaluate the probability of injury, disease, or death in individuals or in the general population from exposure to environmental contaminants. Hazard identification, exposure assessment, dose-response evaluation, and risk characterization processes are emphasized. Risk communication training includes developing practical skills in assessing health concerns and explaining potential health risks or risk management to the general public.

**Recommended and Supplemental Texts:**

1. Robson, M.G. and Toscano, W.A. (Eds.) 2007. Risk Assessment for Environmental Health. Jossey-Bass, John Wiley & Sons, Inc. ISBN-13: 978-0-7879-8319-2.
2. Guidelines for Carcinogen Risk Assessment. EPA/630/P-03/001F, March 2005.  
[http://www.epa.gov/raf/publications/pdfs/CANCER\\_GUIDELINES\\_FINAL\\_3-25-05.PDF](http://www.epa.gov/raf/publications/pdfs/CANCER_GUIDELINES_FINAL_3-25-05.PDF)
3. Science and Decisions: Advancing Risk Assessment. Committee on Improving Risk Analysis Approaches Used by the U.S. EPA. The National Academy of Sciences, Washington D.C., 2009. ISBN-10: 0-309-12046-2. [http://www.nap.edu/openbook.php?record\\_id=12209&page=R1](http://www.nap.edu/openbook.php?record_id=12209&page=R1)

## **Environmental Health Concentration Competencies:**

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

1. Analyze statistical environmental data using appropriate methods and present the results in a meaningful way to different types of audiences.
2. Assess environmental justice issues in both rural and urban communities along with government and community organizations that are resources on environmental health issues.
3. Apply principles and tools of environmental sampling in completing a comprehensive quantitative risk assessment of potentially hazardous environmental and workplace settings.
4. Apply principles and tools of environmental sampling in completing a comprehensive qualitative risk assessment, including onsite evaluations, of potentially hazardous environmental and workplace settings.
5. Analyze the effectiveness of principles and tools of environmental prevention and control program development in addressing community concerns about environmental hazards.
6. Analyze the effectiveness of principles and tools of environmental prevention and control program development in addressing the regulation of environmental hazards.
7. Apply principles and tools of effective risk communication in addressing environmental hazards.
8. Differentiate federal, state and local regulatory programs, guidelines, and authorities that control environmental health issues and the applicability of each.
9. Articulate the interrelationships between environmental health and economic, political, and social factors in the development of environmental policy.
10. Analyze the susceptibility of differing populations to environmental exposures with emphasis on physiologic and psychosocial factors including genetic predispositions.
11. Analyze toxicological data to determine exposure potential and health effects related to exposure to prevalent environmental toxins.
12. Analyze the interactions of biological, chemical and physical agents within the environment and their impacts on human health and biogeochemical cycles.
13. Investigate environmental conditions that may affect a community's health status, and provide technical assistance and leadership to address the concerns of communities.
14. Design project specific sampling plans to delineate the extent of health related environmental hazards.

15. Analyze the effectiveness or performance of international, national and state procedures, interventions, treaties, programs, and regulatory guidelines pertaining to environmental issues.
16. Articulate the cultural, social, economic and behavioral factors that affect health problems influenced by environmental hazard exposure.
17. Describe the integration of environmental health into land use planning and design that would ensure communities have healthy environments and encourage healthy behaviors.

**Course Learning Objectives:** The number in parenthesis corresponds to the competency number from the list above.

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

- (a) Understand the concept of risk and analyze statistical environmental data using appropriate methods (1).
- (b) Interpret environmental data in a meaningful way for different types of audiences (1).
- (c) Apply principles of environmental risk assessment in completing a comprehensive quantitative risk assessment of potentially hazardous environmental settings (3).
- (d) Apply tools of environmental risk assessment in completing a comprehensive quantitative risk assessment of potentially hazardous workplace settings (3).
- (e) Apply tools of environmental risk assessment in completing comprehensive qualitative risk assessment, including onsite evaluations, of potentially hazardous workplace settings to improve public health (4).
- (f) Apply principles of environmental risk assessment in completing a comprehensive qualitative risk assessment, including onsite evaluations, of potentially hazardous environmental settings to improve public health (4).
- (g) Identify the fundamental problems in risk assessment and certain models used (4).
- (h) Apply principles of effective risk communication in addressing environmental hazards and associated adverse effects (7).
- (i) Apply tools of effective risk communication in addressing environmental hazards and associated adverse effects (7).
- (j) Analyze toxicological data to determine the potential for exposure to prevalent and harmful environmental agents (11).
- (k) Analyze toxicological data to determine health effects related or associated with exposure to prevalent and harmful environmental toxicants and agents (11).

## Overview of the Content to be Covered during the Semester.

Week/Date	Topic	Readings	Assignment*
1 01/15/2015	Introduction to Risk Assessment in Public Health, Risk-Assessment –Risk Management Paradigm, Risk Communication	Chapters 1 & 2 Robson & Toscano	Acquire a textbook and read recommended sections
2 01/22/2015	Hazard Identification	Chapters 1 and 2 of the EPA 2005 Carcinogen Guidelines (pp.1-1 through 1-22, 2-1 through 2-60)	<b>Assignment W2:</b> Reflection paper on IRIS Senate Hearing (individual submissions)
3 01/29/2015	Dose-Response, Uncertainty Factors	Chapter 3 of the EPA 2005 Carcinogen Guidelines (pp.3-1 through 3-35)	<b>Assignment W3:</b> Case study: Hazard Identification Short Paper; presentation #1
4 02/05/2015	Quantitative Tools of Exposure Assessment	Chapter 4 of the EPA 2005 Carcinogen Guidelines (pp.4-1 through 4-7)	<b>Assignment W4:</b> Case study: Dose Response Short Paper; presentation #2
5 02/12/2015	Risk Characterization	Chapter 5 of the EPA 2005 Carcinogen Guidelines (pp.5-1 through 5-7)	<b>Assignment W5:</b> Case study: Exposure Assessment Exercise Short Paper; presentation #3
6 <sup>#</sup> 02/19/2015	Risk Communication and Risk Management	Chapter 16 Robson & Toscano	<b>Assignment W6:</b> Case study: Risk Characterization Short Paper; presentation #4
7 <sup>#</sup> 2/26/2015	Overview of Environmental Public Health Laws and their Relationship to Risk	Chapters 14 & 15 Robson & Toscano	
8 <sup>†</sup> 03/05/2015	Service learning project presentations	Review and practice materials necessary for your presentation.	
9 <sup>†</sup> 03/12/2015	MIDTERM EXAM	Review materials presented and discussed during weeks 1 through 7.	Be ready to take a midterm exam.
10 03/19/2015	SPRING BREAK		
11 03/26/2015	Service-Learning Project wrap-up	Service-learning project debriefing, summary of the service provided & learning experience	<b>Reflection Paper</b> Summarizing Service-learning experience and Importance of Risk Communication Skills
12 04/02/2015	Radiological Risk Assessment	Chapter 10 Robson & Toscano	Interview Briefing on Radiological Exposure and Associated Risk (#1)
13 04/09/2015	Microbiological Risk Assessment	Chapter 11 Robson & Toscano	Interview Briefing on Microbial Exposure and Associated Risk (#2)
14 04/16/2015	Risk Assessment and Bioterrorism	Hand-outs	Assignment W13: Interview Briefing on BT Event and Associated Risk (#3)
15 <sup>#</sup> 04/23/2015	Children's Risk Assessment	Chapter 12 Robson & Toscano	Assignment W14: Interview Briefing on Children Exposure and Associated Risk (#4)
16 04/30/2015	Modern Tools of Risk Assessment	Chapter 7 Robson & Toscano	
17 <sup>†</sup> 05/07/2015	FINAL EXAM	Review materials presented and discussed during this course.	Be ready to take the final exam.

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

<sup>#</sup>These classes each will be 2 contact hours to provide sufficient time for the service-learning project.

<sup>†</sup>Consultation will be held prior to midterm and final exams (time to be determined).

### **Course Credit: 3 credit hours**

**Course Structure and Instructional Methods:** This is an in-class course with weekly evening sessions. Each class will be a combination of a lecture, discussion of the class topic and discussion of 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. Written homework assignments, oral presentations, examinations and participation in discussions constitute the basis of each student's evaluation. It is the student's responsibility to read and understand all the course materials and complete on time necessary written homework assignments, quizzes, and exams in order to successfully complete the course. It is expected that that students will spend a minimum of two hours studying and/or preparing for course requirements out of class for every one hour in class. Student is expected to come prepared for each class by reading and reviewing recommended materials; several unannounced quizzes will be administered during the semester prior to the lecture to assess the level of student preparedness for the class. Student is expected to come prepared for each class by reading and reviewing recommended materials; several unannounced quizzes will be administered during the semester prior to and/or after the lecture to assess the level of student preparedness for the class and learning effectiveness. Quiz points vary from 5 to 15 points.

**Furthermore, each student will participate in a Service-Learning project to acquire practical skills in risk communication.**

The course is divided into 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) and homework exercises. Each module posted in Folio will include course notes, assignment instructions, and reading and supplemental materials related to the topic of the module. The lecture notes and supplementary materials will be posted after the class. 10% of points defined per task will be deducted for all late submissions of assignments. Late submissions will not be accepted for briefing questions. Graded assignments and comments will be posted in Folio by 5 pm on Thursday of the following week.

### **Service-Learning Project.**

All students will be involved in a Service-Learning project designed to communicate the risk associated with head louse infestation in school children, proper and conversely ineffective/inappropriate procedures for treatment and the risk of increasing resistance to pediculicides, and conduct a follow up Q&A session. Students will be working in pairs and present lectures to the staff, parents or elementary and middle school students. Each student is expected to deliver at least one lecture to fulfill the requirements for this course (2 students per presenting group, where one is presenting and the other is assisting and taking notes during the Q&A session). Each MPH Candidate is expected to deliver 2 presentations and attend two other lectures; students majoring in other disciplines are expected to give one lecture and attend a second lecture as an assistant. Prior to beginning students will study materials (articles and PowerPoint presentation) and participate in a 2 hr training session to obtain necessary information, develop presentation skills, learn about frequently asked questions and practice

giving appropriate answers. The school nurse will be asked to evaluate each presentation. To wrap up the experience, each student will to be required to submit a reflection/evaluation paper summarizing his/her expectations of this project, experience gained and observations during the process, and post-service summary and evaluation (Details of the reflection paper and grading rubrics will be provided by the instructor at a later date). To accommodate the time needed for this project, several classes will last for only two hours. Since all schools are outside of Bulloch County, the presentations will be delivered via teleconferencing technology or class trips will be arranged. In the situations when the planned presentations are not possible due to the school's cancellation or other unforeseen circumstances, the students will develop a video clip and associated script on the same topic. The final decision on the details of the service project will be made by January 30, 2015.

**Short Reflection or Briefing Papers.**

For several classes, students are required to write a 1-1.5 or 3-page individual reflection paper on a topic pertinent to the theme discussed during that week. The original information should be derived from peer-reviewed manuscripts or popular journals and backed up by the scientific information derived from other sources. Papers containing information “borrowed” (lifted) from IRIS, EPA or any other agency website will not be accepted and graded as failure. Detailed instructions will be provided for each class and posted in Folio. For the first part of the class homework assignments for weeks 2-6 are submitted individually; for the second part of the class students will be working in groups and only the presenting group will be submitting the briefing paper on the due date. For non-presenting students, each will submit 5 typed questions and answers relevant to the discussion topic at the end of the discussion presentation. **Late submissions will not be accepted and not graded.**

**Service-Learning Experience Reflection/Evaluation Paper.**

Each student is expected to write a reflection paper upon completion of the Service-Learning project which is due on March 27, 2015 at 5:00 pm EST. The paper should contain the summary of experiences related to student's expectations of this project (if any), observations and questions accumulated during the site visits and work performed, and consideration of how this work might or might not affect the community served, its value or impact on the student him/herself; include challenging, beneficial and negative components and if or how this experience enabled or helped the student to evolve as a community leader, as well as recommendations for further improvement of the project.

**Final Examination:** Thursday, May 7, 2015. All exams will be closed book exams and taken in the Information Technology Building, room 2202.

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

<i>Assignment Description</i>	<i>Learning Objectives</i>	<i>Points</i>	<i>Weight</i>	<i>Due Date</i>
<b>IRIS Senate Hearing Reflection Paper</b>	<b>1-11</b>	<b>20</b>	<b>4%</b>	<b>1/23/2015</b>
<b>Short Paper: Case Study Exercises</b>	<b>1-3</b>	<b>60</b>	<b>12%</b>	
Part I: Hazard Identification Exercise		15		1/30/2015
Part II: Dose-Response Exercise		15		2/6/2015
Part III: Exposure Assessment Exercise		15		2/13/2015
Part IV: Risk Characterization		15		2/20/2015
<b>PowerPoint Presentation of a topic of a short reflection paper (10 + 5 min)</b>	<b>1-3</b>	<b>15</b>	<b>3%</b>	The day of the topic discussion
<b>Mid Term Exam</b>	<b>1-9</b>	<b>100</b>	<b>20%</b>	<b>03/12/2015</b>
<b>Interview Briefing</b> (group exercise) (15 min)	<b>1-11</b>	<b>20</b>	<b>4%</b>	See course schedule
<b>Briefing paper submission</b>	<b>1-11</b>	<b>20</b>	<b>4%</b>	See course schedule
<b>Briefing questions (3 topics by each student)</b>	<b>1-11</b>	<b>15</b>	<b>3%</b>	See course schedule
<b>Quizzes</b>	<b>1-11</b>	<b>40</b>	<b>8%</b>	<b>As needed</b>
<b>Final Exam</b>	<b>3-11</b>	<b>100</b>	<b>20%</b>	<b>5/8/2015</b>
<b>Class Participation</b>	<b>1-11</b>	<b>30</b>	<b>6%</b>	Every class
<b>Service-Learning Project (including reflection paper and presentation)</b>	<b>1-11</b>	<b>80</b>	<b>16%</b>	<b>3/28/2015</b>
<b>Total Points</b>		<b>500</b>	<b>100</b>	

The following point scale will be utilized in grading:

- A: 450-to-500 points (90%-100%)
- B: 400-to-449 points (80%-89%)
- C: 350-to-399 points (70%-79%)
- D: 300-to-349 points (60%-69%)

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

For calculation of your final grade, all points listed above will be included. The points will not be rounded up to increase the grade. All grades are final; no assignments will be re-graded. Grading on a curve will not be used.

Your grades ***will not*** be posted. 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 in advance. There will be no retroactive credits given due to missing classes or deadlines.



**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. Please, be also aware about such problem as *self-plagiarism* (<http://www.ithenticate.com/Portals/92785/media/ith-selfplagiarism-whitepaper.pdf>).

## **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 on a first day of class. Attendance will not be recorded after this initial period. Please, inform the instructor about all anticipated absences due to the illness (doctor verification is required for the second and third medical absence), work or personal reasons, late arrivals or needs to leave the class early.

**Class Etiquette:**

*Turn off ring tones of your cell phones during the classes, discussions, and presentation meetings.* Laptops and iPads are allowed only for talking notes; if a student is suspected of other uses of electronic devices he will be asked to leave the class. Class will start and end on time; eating in class is not allowed. Each class will have a 10 min break at 6.30 pm; therefore, please, do not exit the classroom during the lecture or discussions.

**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. 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. The students are required to use his/her georgiasouthern.edu e-mail account for all communications with the instructor.