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Fall 2017

### ENVH 8335A - Global Water and Sanitation

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

ENVH 8335 A – Global Water and Sanitation  
Fall 2017

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<b><u>Office Hours</u></b>	Tuesday&Thursday 11:00 am – 2:00 p.m. or by appointment
<b><u>Class Hours:</u></b>	Wednesday 2:30 – 5:15 p.m.
<b><u>Classroom:</u></b>	Hendricks Hall, Room 2037
<b><u>Website:</u></b>	<a href="https://georgiasouthern.desire2learn.com/d2l/le/content/361952/Home">https://georgiasouthern.desire2learn.com/d2l/le/content/361952/Home</a>

### **Prerequisites**

None.

### **Course Overview**

The global water crisis is the most serious threat to human health. Poor water quality, lack of sanitation and inadequate access to clean water resources are one of the major causes of global health disparities. Current issues such as changing climate, decaying infrastructure and reemerging waterborne diseases are also contributors for disease transmission within vulnerable populations. This course analyzes the key drivers that affect global water quality and human health. Real world case scenarios will be examined to develop sustainable and appropriate solutions that consider environmental, individual, cultural, and economic factors.

### **Additional Reading**

- Bartram, J., (2016). Routledge Handbook of Water and Health Routledge, 732 pp.
- Selendy, J.M.H (2011). Water and Sanitation-Related Diseases and the Environment. Wiley and Blackwell, New Jersey, 497 pp.
- Singh and Sharma (2014). Water and Health Springer, India, 404 pp.
- Diamond, J. (2005) Guns, Germs, and Steel. WW Norton, New York, 518 pp.

### **DrPH Core Student Learning Outcomes (CORE):**

1. Demonstrate their readiness to work with communities to address public health problems.
2. Select and apply theoretically based interventions to address public health problems.
3. Apply appropriate research methods to address community health problems, particularly among rural and underserved populations.

### **DrPH Epidemiology Student Learning Outcomes (EPI)**

1. Construct a public health and epidemiological research question from ideas, conditions, and events that exist in a rural and urban community, region, state, and nation using critical thinking skills.
2. Demonstrate required skills for translating public health practice objectives to the appropriate epidemiological framework for analysis and interpretation of results.
3. Select appropriate statistical tools, methodological alternatives, and graphical descriptives to analyze and summarize public health and epidemiological data.
4. Formulate population-based hypotheses and develop appropriate research designs to test these hypotheses.
5. Communicate epidemiological principles and concepts to lay and professional audiences through both oral and written communication.

### **DrPH Core Competencies in Epidemiology**

Upon graduation, a student with a DrPH degree should be able to:

1. Design a public health and epidemiological investigation in terms of experimental design, data to be collected that reflect the research objectives, and specification of appropriate methods of analysis.
2. Analyze public health and epidemiological data using appropriate statistical software such as SAS and R.
3. Develop new epidemiological methods and new ideas for applying existing epidemiological methods to applications in public health and the epidemiological sciences.
4. Develop written and oral reports to communicate effectively with research investigators the pivotal aspects of a study, including: design, study objectives, data analysis methodology, results, and conclusions.
5. Create a collaborative environment for working on written and oral reports.
6. Employ basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiological measures.

### **Performance-Based Objectives Linked to Course Activities (Note: Activities Described in Next Section)**

1. Students will demonstrate competence in comparing the relationships among water availability and quality, environmental factors, waterborne diseases and access to adequate sanitation and hygiene in various development stages (Activity 1)
2. Students will demonstrate the ability to analyze the dynamics of disease transmission,

- morbidity, mortality, methods of detection, and clinical features within the context of water sanitation and hygiene (WaSH) (Activity 2)
3. Students will demonstrate competence in the comparing regional challenges, interventions and preventive measures to reduce or eradicate emerging and reemerging waterborne disease (Activity 3, 4)
  4. Students will demonstrate the ability to review water quality remediation strategies for improving population health (Activity 1, 3)
  5. Students will demonstrate the ability to communicate water and sanitation related disease burden and prevention techniques to lay and professional audience (Activity 4, 5)

### **Assessment of Student Learning**

1. Activity 1: Use course lectures, journal article reviews and in-class discussions to explain the relations between sources of waterborne pathogens, exposure to contaminated drinking and recreational water, emerging waterborne diseases in the context of changing environment with respect to the development status. Competence will be evaluated using three activities: (1) writing assessment through ten research reports analyzing global water sanitation and health (WASH) issues published in peer-reviewed journal articles, (2) mid-term exam, (3) final project.
2. Activity 2: Use case studies to integrate applications of WaSH and preventing and controlling water borne hazards locally and globally. Competence in the ability to integrate concepts will be evaluated using three activities: (1) case study analyses, (2) mid-term exam, (3) final paper.
3. Activity 3: Competence in written communication to the professional audience will be evaluated using (1) ten research reports (2) final project
4. Activity 4: Competence in oral presentation to the professional audience will be evaluated using (1) the preparation and delivery of a presentation of the final project and (2) in class discussions.
5. Activity 5: Competence in written communication to the lay audience will be evaluated using (1) one country specific brief document designed for lay audience.

### **Instructional Methods**

The course meets twice a week for one hour and fifteen minutes. The way we use this time will vary, and will include lectures, guest lectures, article discussions, documentaries, in-class exercises, and student-led presentations. Discussion and debate of course material is crucial for success in the course. Therefore, students are required to read all material assigned for the class and to come to class prepared to discuss the assigned readings.

### **Expectations**

This course will involve the completion of a number of oral and written assignments. Students will be responsible for leading the discussion about the reading assignment. Writing as a means of effective communication, argumentation, and presentation of ideas is extremely important as a public health professional, or a professional of any sort. It is expected that students will turn in assignments that express their ideas thoughtfully, with attention to organization, spelling, and grammar.

In addition, proper citation and quotation of references in writing is absolutely critical, and failure to do so can have serious repercussions both in the academic and professional realms. Failure to give credit as required by APA standards will result in a failing grade on assignments.

If you have questions about citation, please seek help from Dr. Aslan or another source. If you would like assistance in developing your writing skills, the University Writing Center (871-1413) is an excellent resource.

The course is structured along three lines of activity: (1) Weekly discussions to help you build a knowledge base of water health and sanitation and (2) Review of case studies to connect the readings with your existing knowledge, (3) Final project and presentation to get you grounded in existing research practice on topics of your interest.

The course grade will be determined through a combination of in-class assignments and a final paper accompanied by a presentation to your peers at the end of the semester.

## **1. Weekly assignments**

### **Article review**

Students are expected to select a peer-reviewed journal article each week, analyse and write a short report (400 words) about this paper. The topic should reflect that week's content. Students will share the article with the class and the instructor prior to weekly meetings. A separate instruction material for writing these reports will be provided by Dr. Aslan during the semester.

### **In class discussions**

Students are also required to participate in class discussion of the topics listed on the syllabus, basing their participation on the assigned readings and/or media. As a consequence, weekly assignments must be completed prior to the class session. All assignments will be available online at Folio.

## **2. Case study analysis**

There will be one case study evaluation during the semester. Three reports will be produced at the end of these activities to give the students a chance to reflect their knowledge on the material covered. The purpose of these reports is to improve your analytical writing skills. A separate instruction material for writing these reports will be provided by Dr. Aslan during the semester.

## **3. Final Project and Presentation**

### **Country Brief Paper**

Each student will be required to prepare a two pages double sided summary of the final paper, written for general audience. A separate instruction material for writing these reports will be provided by Dr. Aslan during the semester. Feel free to be creative for this assignment, please make sure to include all references cited as well as images used for this assignment.

## Final Project

Each student will be required to prepare a country specific waterborne disease and sanitation project report approximately 6000 words plus references, typed and double spaced, written with fonts Times New Roman 12pt or Arial 10pt.

A variety of topics will be provided by Dr. Aslan and the topic will be selected by the student from these options, in consultation with the instructor, in line with the learning objectives. Successful papers will be selected to be submitted for publication in peer-reviewed journals at the end of the semester.

## Presentation (20 min, followed by Q/A for 10 min)

All students will complete an oral presentation of their final review paper at the end of the course. Students can select to use any presentation tool available (Powerpoint, Prezi or any other tool that you know for sure that it will work on the classroom computer). Guidelines for preparing the presentations will be provided by Dr. Aslan during the semester.

## 4. Examinations

There will be one exam (mid-term). *Please note* that; for this exam and any hand-written assignments, please make certain that your hand-writing is legible. If I cannot read it, I cannot judge it accurately.

Assessments are linked to the learning objectives for this class. Each assessment below is linked to the course learning objectives (1-6) on page 3 of this syllabus. Weighting of assignments for purposes of grading is described in Table 1.

Table 1. Determinants of grades.

	Topics covered	Quantity	Points	Percentage
Mid-Term	Week 1-7	1	100	20%
Case study analysis	Given by the instructor	3	100	15%
Article review	Student will pick a relevant article	5	100	10%
Final project	Student will select the topic approved by the instructor	1	100	25%
Brief paper	Summary factsheet about the country	1	100	10%
Presentation	Podium presentation of the final project	1	100	10%
Discussion participation	All activities in the classroom	n/a	100	10%
Total				100%

n/a: Not applicable

The following point scale will be utilized in grading:

90%-to-100%	A
80%-to-89%	B
70%-to-79%	C
60%-to-69%	D
Below 60%	F

For calculation of your final grade, all grades above will be included and posted on Folio.

There are times when extraordinary circumstances occur (e.g., serious illness, death in the family, etc.). In such circumstances, and/or if you need additional time to satisfactorily complete any course requirement, please consult with the instructor within a reasonable amount of time. *Please note that the extensions are not guaranteed and will be granted solely at the discretion of the instructor.*

## **Policies**

### **Course Policies**

#### **Attendance**

Federal regulations require attendance be verified prior to distribution of financial aid allotments. Attendance is mandatory at all class meetings. Absences for any reason that is non-life threatening will result in a deduction of a letter grade as well as loss of quiz/test/participation points assigned to that class meeting.

#### **Class Participation**

You are expected to participate actively in class discussion in a collegial manner. Class participation is measured by the frequency and quality of your thoughtful contributions to class discussion. You may use a laptop computer during class for class-related purposes only. Using computers or any other electronic devices for purposes not related to class (e.g. checking emails, Facebook, etc) will result in a significant reduction in your participation grade. If the problem persists, I will ban the use of computers in the classroom.

#### **Assignments**

This is a graduate course where knowledge and critical thinking skills must be developed at a higher level than an Master's level course. **Students MUST keep up with the readings for each week.** That means students in this course should be prepared for reading a chapter per week, plus supplemental readings, plus assignments such as discussions, lab reports, and exams.

Course materials will be posted to the Folio site, the week before they are scheduled in the syllabus. Please check the Folio website **regularly**.

All written work uses APA, 6th edition guidelines for reference citing. See <http://www.apastyle.org/>. For those of you who may need assistance with improving your writing for assignments, the data

analysis project, or for general writing, I encourage you to visit the University Writing Center. To learn more, visit their website: <http://class.georgiasouthern.edu/writingc/>.

### **Due Day**

All work and peer critiques to be posted on the course website by the end of **Friday, 10:00 pm the week the assignment is due**. See the course schedule below and the activity guidelines. After uploading any attachments, you should download the file to ensure the file can be accessed. If you experience technical difficulties that prevent you from submitting your work/critiques by the assigned date, you must inform me via email me before the due date (10 pm). For technical assistance contact: Center for Academic Technology Support (912) 478-0882 or [cats@georgiasouthern.edu](mailto:cats@georgiasouthern.edu). The center also provides Live Chat for quick questions too. (Hours: M-Th 7:30am-9pm; F 7:30am-5pm; Su 4-9pm).

### **Extra Credit**

No individual extra credit is allowed or will be given in this course. Graduate students are expected to utilize best effort on all assignments, graded examinations, and intellectual challenges (papers, discussions, presentations) and so forth.

### **Exam Make-ups**

Make-ups for quizzes and exams are generally not possible due to the infrequency of class meetings, unless extenuating and serious circumstances (at the discretion of the instructor) are present.

### **Response time**

I try to provide timely feedback on your work within 1-3 days. Feedback will be found in the Discussions menu link where you posted your work. A reply box will contain my feedback. Changes in response time (e.g., conference attendance) will be communicated through email and online announcements. I am online during the semester for much of the day, but sporadically on weekends.

### **Tardy/Late Policy**

I expect students to be present when class starts. I always start on time so you need to be in your seat & ready to go by 3:30. Late arrivals (anything beyond the first 10 minutes of class) will not be added to the attendance sheet. **Late assignments will receive a zero grade if turned in past due.**

## **University Policies**

### **Academic Integrity**

The instructor believes that the conduct of a student registered or taking courses in the JPHCOPH should be consistent with that of a professional person. Courtesy, honesty, and respect should be shown by students toward faculty members, guest lecturers, administrative support staff, and fellow students. Similarly, students should expect faculty to treat them fairly, showing respect for their ideas and opinions and striving to help them achieve maximum benefits from their experience in the JPHCOPH.



Please adhere to the strictest academic standards of conduct noted in the GSU *Student Conduct Code* and the *Undergraduate & Graduate Catalog*. Familiarize yourself with University's policies. Enrollment in this course is an implied contract between you and the instructor. Academic integrity relates to the appropriate use of intellectual property. The syllabus and all materials presented and/or distributed during this course are protected by copyright law. You are authorized to take notes, but that authorization extends only to making one set of notes for personal (and no other) use. Students are not authorized to sell, license, commercially publish, distribute, transmit, display, or record notes in or from class without written permission of the instructor.

Student academic misconduct refers to behavior that may include plagiarism, cheating, fabrication, falsification of records or official documents, intentional misuse of equipment or materials (including library materials), and aiding and abetting the perpetration of such acts. The preparation of reports, papers, and examinations, assigned on an individual basis, must represent each student's own effort. Reference sources should be indicated clearly. The use of assistance from other students or aids of any kind during a written examination, except when the use of aids such as electronic devices, books or notes has been approved by an instructor, is a violation of the standard of academic conduct.

### **Intellectual Property**

In accordance with the Georgia Board of Regents, Georgia Southern University has adopted a specific set of policies regarding intellectual property created by students and faculty during their time at Georgia Southern University. This document can be found at:

<http://welcome.georgiasouthern.edu/president/intpropol.htm>

### **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***

*The following protocol has been established to provide students with due process.*

#### **A. 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.

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

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 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.

**C. Second Violation of Academic Dishonesty**

1. 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.
2. 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.

**Academic Handbook**

Students are expected to abide by the Academic Handbook, located at:  
<http://students.georgiasouthern.edu/sta/guide/>.

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**

Attendance the first day of class is **mandatory** per University policy. Federal regulations require attendance be verified prior to distribution of financial aid allotments.

### **Accommodations**

Georgia Southern University is an Equal Opportunity and Affirmative Action institution committed to providing reasonable accommodations for any person with a disability who meets the definition of disabled as described in the Americans with Disabilities Act. Students requiring academic accommodation should contact the Director of the Student Disability Resource Center for assistance at 912.871.1566 or TDD: 912.478.0666. Students requiring academic accommodation should also *notify the instructor no later than the third class meeting* in the semester.

### **Disclaimer**

The contents of this syllabus are as complete and accurate as possible. I reserve the right to modify the syllabus and schedule to adjust for changing conditions and student needs. Updates will be emailed and posted on the website. I will make every effort to inform you 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. You are responsible for any material covered or distributed online, including any announcements, so please check the course website in Folio **regularly**.

### **Tacit Approval**

Review this document carefully and ensure that you understand the course policies, procedures, tentative course structure, and grading schema. Remaining in the course implies tacit agreement to the policies and procedures detailed in this syllabus.

## Tentative Overview of Course Content

Week	Date	Topic	Assignment	Assessment
1	08/16/17	Course introduction Syllabus overview	Syllabus Final paper topics	Student introductions
2	08/23/17	Introduction to water related hazards and disease transmission	Ch1-3	Topic discussion
<b>08/25/17 Final Paper Topic Selection DUE 10:00 PM</b>				
3	08/30/17	Development and Water Quality	Provided by the instructor	Topic discussion Article short review-I
<b>09/01/17 Final Paper Outline DUE 10:00 PM</b>				
4	09/06/17	Health impacts of naturally occurring pollutants in water	Provided by the instructor	Topic discussion
5	09/13/17	Waterborne diseases	Provided by the instructor	Topic discussion
6	09/20/17	Water-based and water related diseases	Ch5, 6	Topic discussion Article short review II
<b>09/22/17 MIDTERM EXAM</b>				
8	09/27/17	Sources of exposure I	Ch12-13	Topic discussion
9	10/04/17	Sources of exposure II	Ch 14-15	Topic discussion

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Assignment</b>	<b>Assessment</b>
<b>10</b>	<b>10/11/17</b>	Interventions in drinking water supply	Ch 17-18	Topic discussion Article short review III
<b>10/13/17 Final Paper Draft DUE 10:00 PM</b>				
<b>11</b>	<b>10/18/17</b>	Interventions for household water treatment and water for hygiene Case Study	Ch 21-22, 27	Topic discussion Article short review Case Study Report-I
<b>12</b>	<b>10/25/17</b>	Case Study	Provided by the instructor	Case Study Report-II
<b>13</b>	<b>11/01/17</b>	Case Study	Provided by the instructor	Case Study Report-III Article short review IV
<b>14</b>	<b>11/08/17</b>	<b>APHA Meeting –NO CLASS</b>		
<b>15</b>	<b>11/15/17</b>	GIS and spatial analysis	Ch57	Topic discussion Article short review V
<b>15</b>	<b>11/22/17</b>	<b>Thanks Giving Break</b>		
<b>16</b>	<b>11/29/17</b>	<b>Final Presentations</b>		