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Fall 2019

### ENVH 8335 A – 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 2019

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<b><u>Office Hours</u></b>	Tuesday&Thursday 1:30-3:30 PM 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/home/418821">https://georgiasouthern.desire2learn.com/d2l/home/418821</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**

Routledge Handbook of Water and Health (2016). Bartram, J. 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.

### **General Expectations**

For every one-credit hour, you should expect to work roughly two hours outside the classroom each week. For example, for a three credit hour course, during a regular fifteen week semester, you should expect approximately ninety hours of work outside of class.

Students are expected to keep up with the class, to read the required material, and to submit assignments and activities by due dates and times.

Students are expected to independently complete all activities, exercises, assignments, and assessments including exams.

Students are expected to produce quality work. Typos and grammar errors should be kept to a minimum. The format and readability of submissions will be taken into consideration when assigning a grade.

Remember to check when assignments are due. It is recommended that you stay ahead of schedule on the assignments, so if an emergency happens, your assignment will be completed and ready to submit within the designated time frame. It is your responsibility to keep track of the due dates for each assignment.

## **Response Times**

During a normal work week (i.e., Monday 9:00 AM through Friday 5:00 PM) students can expect responses as follows:

- Email: within 48 hours
- Discussion posts: within 72 hours
- Assignment grades: within 72 hours of submission date.

Exceptions: I may not check FOLIO or GSU email over the weekends. If you send me an email after 5:00 PM on Friday, please do not expect a response until the following Monday.

All assignments will be graded promptly so that students may accurately calculate their grades at any point in time during the semester. 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. Extensions are not guaranteed and will be granted solely at the discretion of the instructor.

## **Course 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 three case study evaluation during the semester. Reports produced at the end of these activities will 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 water and sanitation review paper that has 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.

	<b>Topics covered</b>	<b>Quantity</b>	<b>Points</b>	<b>Percentage</b>
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	10	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.*

### **Class Attendance and Participation Policy**

Federal regulations require attendance be verified prior to distribution of financial aid allotments. Regular attendance is expected. Your attendance will be verified at the first regular class session.

It is the policy of the University to permit students, faculty, and staff to observe those holidays set aside by their chosen religious faith. The faculty should be sensitive to the observance of these holidays so that students who choose to observe these holidays are not seriously disadvantaged. It is the responsibility of those who wish to be absent to make arrangements in advance with their instructors.

Students participating in authorized activities as an official representative of the University (i.e., athletic events, delegate to regional or national meetings or conferences, participation in university-sponsored performances, and JPHCOPH funded) will not receive academic penalties and, in consultation with the instructor of record, will be given reasonable opportunities to complete assignments and exams or given compensatory assignment(s) if needed. The student must provide written confirmation from a faculty or staff advisor to the course instructor(s) at least 10 days prior to the date for which the student will be absent from the class. The student is responsible for all material presented in class and for all announcements and assignments. When possible, students are expected to complete these assignments before their absences. In the event of a disagreement regarding this policy, an appeal may be made by either the student or the instructor of record to the corresponding college dean. (University Graduate Catalog)

### **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 & 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.



## **Plagiarism**

According to the Academic Dishonesty Policy of Georgia Southern University, 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 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."

#### **Accommodations for Individuals with Disabilities**

In compliance with the Americans with Disabilities Act (ADA), Georgia Southern University will honor requests for reasonable accommodations made by individuals with disabilities. Students must self disclose any disability for which an accommodation is being sought to the

Student Disability Resource Center (SDRC) before academic or other accommodations can be implemented. For additional information, please call the Director of EEO and Title IX at (912) 478-5136 / TDD (912) 478-0273 or the SDRC Director at (912) 478-1566 / TDD (912) 478-0666. The TDD phone numbers are intended for individuals with hearing impairments.

## **University Calendar for the Semester**

The University Calendar is located with the semester schedule, and can be found at:  
<http://em.georgiasouthern.edu/registrar/resources/calendars/>

### **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 ensure better student learning. The instructor will announce any such changes in class. It is the responsibility of the student to know what changes have been made in order to successfully complete the requirements of the course.

This syllabus, my lecture notes, and all materials distributed and presented during this course are protected by copyright law. You are authorized to take notes in this class but that authorization extends to only making one set of notes for your personal use and no other use. You are not authorized to sell, license, commercially publish, distribute, transmit, display, or record notes from this class unless you have my written consent to do so.

### **STUDENT CONDUCT CODE**

The Student Conduct Code is the official University publication governing student conduct and behavior. It is the responsibility of each student to become familiar with the rules and regulations governing student life. Student conduct procedures, appeal procedures, and disciplinary sanctions are found in the Student Conduct Code at <http://students.georgiasouthern.edu/conduct>. I acknowledge that I have read and understand this statement referencing the Student Conduct Code.

### **ACADEMIC DISHONESTY**

The University goal is to foster an intellectual atmosphere that produces educated, literate people. Because cheating and plagiarism are at odds with that goal, they shall not be tolerated in any form. Students are expected to adhere to the rules and regulations as set forth in the Student Conduct Code. Therefore, all work submitted by a student must represent that student's own ideas and effort; when the work does not, the student has engaged in academic dishonesty. Plagiarism occurs when a person passes in another person's work as his or her own, borrows directly from another person's work without proper documentation, and resubmits his or her own work that has been previously submitted without explicit approval from the instructor. For example, academic dishonesty occurs whenever a student participates in any of the following: Cheating submitting material that is not yours as part of your course performance; using information or devices that are not allowed by the faculty; obtaining and/or using unauthorized materials; fabricating information, research, and/or results; violating procedures prescribed to protect the integrity of an assignment, test, or other evaluation; collaborating with others on assignments without the faculty's consent; cooperating with and/or helping another student to cheat; demonstrating any other forms of dishonest behavior. Plagiarism directly quoting the words of others without using quotation marks or indented format to identify them; using sources of information (published or unpublished) without identifying them; paraphrasing materials or ideas without identifying the source; self-plagiarism - resubmitting work previously submitted without explicit approval from the instructor; unacknowledged use of materials prepared by another person or

agency engaged in the selling of term papers or other academic material. NOTICE: The list above is intended only to provide general guidelines for recognizing and avoiding common types of academic dishonesty. It is in no way an exhaustive or comprehensive list of all the types of academic dishonesty. For more information about academic honesty, see the Student Conduct Code at <http://students.georgiasouthern.edu/conduct>. I acknowledge that I have read and understand the Academic Dishonesty Policy.

I have read the syllabus and understand the contents and course requirements.

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Student Name (print)

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Student Signature

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Date

## Tentative Overview of Course Content

Week	Date	Topic	Assignment	Assessment
1	08/21/19	Course introduction Syllabus overview Introduction to water related hazards and disease transmission	Syllabus Final paper topics	
2	08/22/19	Water related hazards and disease transmission	Ch1-3 (Selendy) Ch 4 (Routledge) Bain et al., 2015	(Pruss-Ustun et al., 2014)
<b>08/26/18</b> <b>Final Paper Topic Selection DUE 10:00 PM</b>				
3	08/28/19	Health impacts of naturally occurring pollutants in water	Provided by the instructor	Topic discussion Article short review
<b>09/02/18</b> <b>Final Paper Outline DUE 10:00 PM</b>				
4	09/04/19	Waterborne diseases	Provided by the instructor	Topic discussion
5	09/11/19	Waterborne diseases-continued	Provided by the instructor	Article short review
6	09/18/19	Water-based and water related diseases	Ch5, 6	Topic discussion
<b>09/25/19</b> <b>MIDTERM EXAM (In-Class)</b>				
8	10/02/19	Sources of exposure I	Ch12-13	Topic discussion Article short review
9	10/09/19	Sources of exposure II	Ch 14-15	Topic discussion Article short review

<b>Week</b>	<b>Date</b>	<b>Topic</b>	<b>Assignment</b>	<b>Assessment</b>
<b>10</b>	<b>10/16/19</b>	Interventions in drinking water supply	Ch 17-18	Topic discussion Case study analysis
<b>11</b>	<b>10/23/19</b>	Interventions for household water treatment and water for hygiene	Ch 21-22, 27	Topic discussion Article short review
<b>10/27/19</b> <b>Final Paper Draft DUE 11:59 PM</b>				
<b>12</b>	<b>10/30/19</b>	Water supply in rural settings and re-use	Ch31, 39	Topic discussion Article short review
<b>13</b>	<b>11/06/19</b>	Emergencies and disasters Burden of disease assessment	Ch37, 40, 57	Topic discussion
<b>14</b>	<b>11/13/19</b>	Case study analysis		Topic discussion Article short review
<b>15</b>	<b>11/20/19</b>	GIS and spatial analysis	Ch57	Topic discussion Article short review
<b>16</b>	<b>11/27/19</b>	Thanksgiving Break		
<b>17</b>	<b>11/04/19</b>	Presentations, factsheet, and final paper submission		