

EVSP310

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Course : EVSP310 **Title :** Water Science

Length of Course : 8

Prerequisites : MATH302, BIOL133, SCIN130 **Credit Hours :** 3

Description

Course Description: An overview course on water sources, uses, management and conservation; biological, economic, and health issues. The course will use chemical and engineering approaches to water and waste water treatment. It includes studies for assessing chemicals in water and waste water. Students will cover the application of standardized analytical methods for evaluating water quality. (Prerequisites: BIOL133 OR SCIN130 and MATH302)

Course Scope:

As a general survey course, EVSP310 Water Science introduces the student to the broad array of scientific, technical, engineering, planning, and management issues surrounding water uses in the world today and in the near-term future, with a focus on water quantity, water quality, and availability. This introductory course addresses water sources, uses, management and conservation as well as biological, economic, and health issues. Chemical and engineering approaches to water and wastewater treatment are also discussed. Application of standardized analytical methods for evaluating water quality will be presented. The goal of EVSP310 is to provide the student with a basic knowledge of water resources and management techniques and some fundamental skills in applying this knowledge to practical problems in his or her career or areas of special interest. It should also prepare the student for advanced courses in environmental management, environmental engineering, or public administration.

Objectives

After successfully completing this course, you will be able to:

LO-1 Describe the hydrological cycle and how it interacts with human activities.

LO-2 Evaluate the threats to water supplies of adequate quantity and quality.

LO-3 Illustrate the health implications of water quality and water pollution.

LO-4 Explain the basic processes of drinking water and wastewater treatment.

LO-5 Analyze water quality data, including both chemical and biological sample results.

LO-6 Describe the concepts and requirements for managing water resources.

Outline

Week 1: All About Water The Water Cycle Groundwater Surface Water

Learning Objectives

LO-1 Describe the hydrological cycle and how it interacts with human activities

LO-3 Illustrate the health implications of water quality and water pollution

Readings

Spellman, Chapter 1 -- Introduction

Spellman, Chapter 2-- All about Water

US Geological Survey web resources on groundwater and surface water

Assignments

Forum 1

Assessment 1

Week 2: Water Chemistry Water Treatment

Learning Objectives

LO-2 Evaluate the threats to water supplies of adequate quantity and quality

LO-3 Illustrate the health implications of water quality and water pollution

LO-4 Explain the basic processes of drinking water and wastewater treatment

Readings

Spellman, Chapter 4 -- Water Chemistry

Assignments

Forum 2

Assessment 2

Week 3: Water Biology Bacteria and Organisms in Water

Learning Objectives

LO-2 Evaluate the threats to water supplies of adequate quantity and quality

LO-3 Illustrate the health implications of water quality and water pollution

LO-4 Explain the basic processes of drinking water and wastewater treatment

Readings

Spellman, Chapter 5 -- Water Biology

Assignments

Forum 3

Case Study 1

Week 4: Water Ecology Nutrient Cycles Macroinvertebrates

Learning Objectives

LO-1 Describe the hydrological cycle and how it interacts with human activities

LO-3 Illustrate the health implications of water quality and water pollution

Readings

Spellman, Chapter 6 -- Water Ecology

The Izaak Walton League of America web resource - Save Our Streams Program

Assignments

Week 4 Forum

Assessment 3

Week 5: Water Pollution

Learning Objectives

LO-2 Evaluate the threats to water supplies of adequate quantity and quality

LO-3 Illustrate the health implications of water quality and water pollution

Readings

Spellman, Chapter 7 – Water Pollution

US Environmental Protection Agency web resource - Underground Storage Tanks

US Environmental Protection Agency web resource – MTBE and Underground Storage Tanks

Assignments

Week 5 Forum

Assessment 4

Week 6: Environmental Biomonitoring, Sampling and Testing Water Economics

Learning Objectives

LO-1 Describe the hydrological cycle and how it interacts with human activities

LO-3 Illustrate the health implications of water quality and water pollution

LO-5 Analyze water quality data, including both chemical and biological sample results

LO-6 Describe the concepts and requirements for managing water resources

Readings

Spellman, Chapter 8 -- Environmental Biomonitoring, Sampling, Testing

Spellman, Chapter 9 -- Water Economics

Canfield et al. (2002) - Volunteer Lake Monitoring

US Environmental Protection Agency - Monitoring and Assessing Streams

Stroud Water Research Center - Water Quality Sampling Basics

Princeton Hydro - Sampling demonstration videos

Assignments

Week 6 Forum

Assessment 5

Week 7: Water Use and Availability

Learning Objectives

LO-1 Describe the hydrological cycle and how it interacts with human activities

LO-5 Analyze water quality data, including both chemical and biological sample results

LO-6 Describe the concepts and requirements for managing water resources

Readings

Spellman, Chapter 10 – Water Use and Availability Barlow (2008) *The Global Water Crisis and the Coming Battle for the Right to Water* (Foreign Policy in Focus Report)

World Water Council (2009) *Water Crisis*

Assignments

Week 7 Forum

Case Study 2

Week 8: Water Treatment Water Treatment Calculations

Learning Objectives

LO-4 Explain the basic processes of drinking water and wastewater treatment

LO-6 Describe the concepts and requirements for managing water resources

Required Readings

Spellman, Chapter 11 – Water Treatment

Spellman, Chapter 12 – Water Treatment Calculations

US Environmental Protection Agency - Water Treatment Process

Illinois Section American Water Works Association sampling demonstration videos

Assignments

Week 8 Forum

Assessment 6

Evaluation

Evaluation of Assignments:

- **Forum Participation:** Students are to respond to the questions posted on the weekly forum. Postings should be well thought out and address each assigned weekly forum topic. Students should conduct scholarly research to support each forum post. Pure opinion should not be presented, as this is a scientific course. Along with their original thread and follow-up discussion within that thread addressing questions from classmates and the instructor, students are required to post substantial scholarly responses to at least two other student forum threads to discuss the concepts presented. Initial posts are required to cite at least one reference source using APA style (see further details below). See the Forum Grading Rubric in the Forums section of the classroom for further guidance.
- **Homework Assignments:** Students will complete six weekly assessments comprised of multiple choice, matching, true/false, and/or essay questions. Essay questions should be thorough and show your mastery of the materials. Students will complete two Case Study assignments, which will require additional outside academic research and critical thinking. Grading will focus on the student's analysis, reasoning, and depth of understanding of the issues, and thorough discussion of the water issue(s) analyzed.

Your final grade will be based on the following course requirements:

Students are responsible for following all of the guidance in the manual for writing their papers and not rely on this syllabus to provide all of the details relevant to the research paper requirement. Students should read Chapter 1, Section A, for the guidelines for the research paper (do not follow the requirements for the Thesis or Creative Project). The manual will be made available for your use and students should also read all appendices for additional details for the paper. Students should read the manual in full.

Reading Assignments: n/a

Supplemental Readings: n/a

Forum Assignments: Please see the Forum area for Week 1.

Homework Assignments: Please see the Assignments area for this information.

Exams/Quizzes: n/a

Field Experience Assignments: Please review the information above.

Final Project: Please review the information above and the Assignments section for additional information.

Grading:

| Name | Grade % |
|--------|---------|
| Forums | 24.00 % |

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|---|----------------|
| Forum 1 | 3.00 % |
| Forum 2 | 3.00 % |
| Forum 3 | 3.00 % |
| Forum 4 | 3.00 % |
| Forum 5 | 3.00 % |
| Forum 6 | 3.00 % |
| Forum 7 | 3.00 % |
| Forum 8 | 3.00 % |
| Assessments | 42.00 % |
| Assessment 1 | 7.00 % |
| Assessment 2 | 7.00 % |
| Assessment 3 | 7.00 % |
| Assessment 4 | 7.00 % |
| Assessment 5 | 7.00 % |
| Assessment 6 | 7.00 % |
| Case Studies - Assignments | 34.00 % |
| Case Study 1 - Week 3 | 17.00 % |
| Case Study 2 - Analysis of Water Quality Data | 17.00 % |

Materials

Book Title: The Science of Water, 3rd Ed-Ebook available in the APUS Online Library

Author: Spellman, F

Publication Info: Taylor & Francis Group

ISBN: 9781482242935

Book Title: To find the library e-book(s) req'd for your course, please visit <http://apus.libguides.com/er.php> to locate the eReserve by course #. You must be logged in to eCampus first to access the links.

Author: N/A

Publication Info: N/A

ISBN: N/A

Required Readings

See the Lessons section of the classroom for additional readings and weekly lecture notes

Additional Resources: Please go to the program guides in the APUS Library for additional resources:

- Environmental Science: http://apus.libguides.com/environmental_science
- Environmental Policy and Management: http://apus.campusguides.com/environmental_policy_management?hs=a

Software Requirements

- Microsoft Office (MS Word, MS Excel, MS PowerPoint) - American Public University System provides

- Microsoft Office 365 to AMU/APU students and faculty at no cost
- Adobe Acrobat Reader

Web Sites

In addition to the required course texts, the following public domain web sites are useful. Please abide by the University academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

U.S. National Oceanic & Atmospheric Administration (NOAA): <http://www.noaa.gov/>

U.S. Department of Agriculture (USDA) Water Quality Information Center: <http://wqic.nal.usda.gov/>

U.S. Geological Survey (USGS) Water Resources of the United States: <http://www.usgs.gov/water/>

U.S. Environmental Protection Agency (US EPA) Water Science topics:
<http://www2.epa.gov/science-and-technology/water-science>

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- [Tutor.com](http://www.tutor.com) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 20% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a

direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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