

## Instructors:

**Prof. A. Pouyan Nejadhashemi**

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## Office Hours

Please send an email to [pouyan@msu.edu](mailto:pouyan@msu.edu) before 5:00 pm one day in advance with your availability (three time slots) and I will get back to you by 8:00 am on the day of meeting. Dr. Nejadhashemi will arrange the zoom call.

## Class

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Time	Day of Week
9:10 to 11:00 am	Monday
9:10 to 11:00 am	Wednesday

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## Course Descriptions

This course reviews components of the hydrologic cycle, including the occurrence and movement of water on and beneath the surface of the Earth, the properties of water, and water's relationship with the environment. In this course students will be also introduced to geographical information systems (GIS) and hydrologic modeling applications in environmental & water resources engineering.

## Course Objectives

The objective of this course is to give the student an understanding of the basic terminology of surface and groundwater hydrology. Upon successful completion of this course, the student will be able to:

- Understand watershed hydrology and applying this knowledge to design hydraulic structures.
- Understand geographical information systems and apply them to solve water resources problems.

## Course Outline

- Introduction to hydrology
- Hydrological measurement
- Precipitation
- Interception and depression storage
- Evaporation
- Transpiration
- Infiltration
- Surface water hydrology
- Hydrographs
- Ground water hydrology
- Urban hydrology
- Introduction to watershed modeling
- Hydrology in design
- Soil Erosion

## Important Dates

1. Class Begins
2. Open adds end
3. Last day to drop with refund
4. Last day to drop with no grade reported
5. Class Ends

## Course Materials

### Required

- **Required Textbooks:**
  - Introduction to hydrology 5th edition. 2003. Warren Viessman, Jr. and Gary L. Lewis. Prentice Hall.
  - Getting to know ArcGIS for desktop 5th edition. 2018. Michael Law and Amy Collins. ESRI Press.
- **Online materials:**
  - BASINS (Better Assessment Science Integrating Point and Nonpoint Sources). Available online at: <https://www.epa.gov/exposure-assessment-models/basins-download-and-installation>
  - WinTR-55 Watershed Hydrology. Available online at: <http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/?cid=stelprdb1042901>
  - HEC-HMS (Hydrologic Modeling System). Available online at: <http://www.hec.usace.army.mil/software/hec-hms/>
  - Revised Universal Soil Loss Equation 2 - Overview of RUSLE2. Available online at: <http://www.ars.usda.gov/Research/docs.htm?docid=6010>
- **Technical assistance:**
  - MSU Help site. Available online at: <http://help.msu.edu>
  - Desire2Learn Help Site. Available online at: <http://help.d2l.msu.edu>
  - Call the MSU IT Service Desk at (517)432-6200, (844)678-6200, or e-mail at [ithelp@msu.edu](mailto:ithelp@msu.edu)

## Grading

Your grade will be based on the following assignments as well as class participation:

<b>Class participation/preparation</b>	10 points
<b>Homework assignments</b>	30 points total (12 assignments)
<b>Lab reports</b>	20 points total (10 reports)
<b>Projects</b>	40 points total (2 projects)
<b>TOTAL</b>	100

Grading scale will be assigned as follows:

Grade	Average
4.0	90 – 100
3.5	85 – 89.9
3.0	80 – 84.9
2.5	75 – 79.9
2.0	70 – 74.9
1.5	65 – 69.9
1.0	60 – 64.9

## Assignments

All assignments must be submitted into the shared OneDrive folder by the beginning of class on the date due. **Late assignments will not be accepted.** Assignments that are poorly prepared (neatness, completeness, spelling, grammar, punctuation, etc.) will not be graded. All assignments will be graded and returned into the shared OneDrive folder.

**Reading Assignments.** Students will be expected to complete all assigned readings prior to each class session. The assigned readings will be the daily topic of lecture and in-class discussions.

## Classroom Management

**Ground Rules.** To facilitate having a cooperative learning environment, we will utilize the following ground rules to govern the "way we do business" in our classroom. These rules should be followed by everyone, including the instructor, as we conduct class on a daily basis. We will modify these rules as we need to.

- Classes will start and end on time.
- Everyone will come to class prepared (e.g., reading completed, abstracts done).
- Everyone will participate.
- No one will speak while others are speaking.
- Cell phones will be turned off or switched to a silent mode during class.

People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning in the classroom will not be tolerated. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, religion, national origin or other categories protected by university policy will be referred to the Department of Student Life or other appropriate campus office (see [www.inclusion.msu.edu](http://www.inclusion.msu.edu)).

**Attendance.** This class is organized so that online attendance and participation are essential to the success of each student. Students are expected to fully participate in all online class sessions.

**Special Needs.** Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at [rcpd.msu.edu](http://rcpd.msu.edu). Once your eligibility for an accommodation has been determined, you will be issued a verified individual services accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date will be honored whenever possible.

**Use of Social Media Derived from the Classroom.** As members of a learning community, students are expected to respect the intellectual property of course instructors. All course materials presented to students are the copyrighted property of the course instructor and are subject to the following conditions of use:

- Students may not record lectures or any other classroom activities.
- Students may not provide their lecture notes to other people or companies or post/share them online.
- Any student violating the conditions described above may face academic disciplinary sanctions.

### Student Honor Code

On all assignments, examinations, or other course work undertaken by MSU students, the following pledge is implied, whether or not it is stated: "***On my honor I pledge that this work is my own and I did not receive any unauthorized help nor am I aware of any infraction of the honor code.***" The honor code states, "As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do." Although we have specifically authorized and encouraged teamwork with certain projects and homework, you still are on your honor that any teamwork represents a *meaningful collaboration* in which your contribution is evident (please ask if you need me to clarify what this means), and you must give appropriate credit to all collaborators and sources.

### Mandatory Reporting

Michigan State University is committed to fostering a culture of caring and respect that is free of relationship violence and sexual misconduct, and to ensuring that all affected individuals have access to services. For information on reporting options, confidential advocacy and support resources, university policies and procedures, or how to make a difference on campus, visit the Title IX website at [www.titleix.msu.edu](http://www.titleix.msu.edu).

### Limits to Confidentiality

Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues based on external legal obligations or that relate to the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices if you share it with me:

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child,
- Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and

- Credible threats of harm to oneself or to others.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the MSU Counseling Center.