

*Geology 340 Syllabus; Fall, 2019*

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|--|-------------------|--|
| <b>GEOL340 (3 credits)</b>   | <b>Fall, 2019</b> | <b>Hydrogeology</b>                                |
| <b>Dr. Scott Werts</b>   |                   | <b>Office: Sims 212A</b>                           |
| <b>Course Classroom: Sims 201</b>  |                   | <b>Meeting Time: MW 9:30 – 10:45</b>               |
| <b>Email: <a href="mailto:wertss@winthrop.edu">wertss@winthrop.edu</a></b> |                   | <b>Office Hours: MW 11-12:30 or by appointment</b> |
| <b>Text: Physical Hydrology (2<sup>nd</sup> ed) S. Lawrence Dingman</b>    |                   | <b>Office Phone: 323-4930</b>                      |

**Course Goals and Objectives:** Water is one of the most fundamental and important compounds on the planet. The objective of this course is to give the students a basic understanding of the physical and chemical processes that govern fundamental hydrologic processes. Students will explore the existence and movement of water in the ground, in the air, in biological systems and on the earth's surface.

**Course Attendance:** Attendance at lecture is both necessary and mandatory. There will be course material covered in lecture that goes beyond the assigned readings. There will also be entire sections of this course dedicated to subjects not covered in your textbook. All of this material will be considered testable.

**Course Preparation:** You are responsible for assigned readings in this course prior to the associated lecture. The information contained in these readings is pertinent to the course and is considered testable material. If you do not understand something from the readings, please ask. There is no such thing as a "dumb question" in this course and I will try in earnest to answer every question asked.

**Course Grading:** Your grade for this course will be based on the following distribution of work:

|                                |                     |                 |
|--------------------------------|---------------------|-----------------|
| <b>10 Homework Assignments</b> | <b>10 Pts. Each</b> | <b>100 Pts.</b> |
| <b>3 Midterm Exams</b>         | <b>50 Pts. Each</b> | <b>150 Pts.</b> |
| <b>1 Final Exam</b>            | <b>100 Pts.</b>     | <b>100 Pts.</b> |
| <b>1 Semester Paper</b>        | <b>100 Pts.</b>     | <b>100 Pts.</b> |
| <b>Total</b>                   |                     | <b>450 Pts.</b> |

The homework assignments will be distributed at fairly regular intervals throughout the course. Many will involve calculations based on principals covered in class. Some will involve demonstrating knowledge of the material covered in class by writing short 1-2 paragraph responses to questions. The midterm exams will ask questions in a similar manner as those on the homework. The final exam is cumulative.

Homework assignments will be distributed at various intervals throughout the semester. They are designed to reinforce lecture and reading material. Assignments will always be

due during the beginning of class on the Monday after they are assigned. There is a late penalty of 2 points per day for each day the assignment is late.

The dates for the exams are included below. There will be no make-up exams or quizzes without prior arrangement from the instructor *and/or* documentation of an emergency that necessitates the student missing class. If you are in danger of missing class, it is best if you notify me by email or phone message as soon as possible.

The semester paper will be discussed in greater detail during class time. It will involve extracting data, analyzing results and writing up the results in a coherent scientific report. The due date will be announced midway through the course, but you will be provided everything you need to get started within the first several weeks of class time.

Grades for the course will be determined based on the following grading scale:

|   |           |
|---|-----------|
| A | 90 - 100% |
| B | 80 - 89%  |
| C | 70 - 79%  |
| D | 60 - 69%  |
| F | < 59%     |

A grading curve may be applied at the instructor's discretion, but the point value required for a particular grade will never be more than indicated above. A total of 405 points earned for the course will always equal an A.

**Statement on Cheating:** Your grade in this course will be based solely on your work alone. Any attempt to copy another student's answers during tests, quizzes or homework or any use of unauthorized materials (cheat sheets/information stored on calculators/etc.) during test and quiz time is strictly forbidden and could result in an "F" for the entire course in conjunction with other unpleasant administrative actions. Answers to questions from homework assignments should reflect your work, not sentences copied from books, websites or from other students. Unethical behavior with regard to course material will not be tolerated.

**Students with Disabilities/Need of Accommodations for Access:**

Winthrop University is committed to providing access to education. If you have a condition which may adversely impact your ability to access academics and/or campus life, and you require specific accommodations to complete this course, contact the Office of Accessibility (OA) at [803-323-3290](tel:803-323-3290), or, [accessibility@winthrop.edu](mailto:accessibility@winthrop.edu). Please inform me as early as possible, once you have your official notice of accommodations from the Office of Accessibility.

**Academic Success Center**

Winthrop's Academic Success Center is a free resource for all undergraduate students seeking to perform their best academically. The ASC offers a variety of personalized and structured resources that help students achieve academic

excellence, such as tutoring, academic skill development (test taking strategies, time management counseling, and study techniques), group and individual study spaces, and academic coaching. The ASC is located on the first floor of Dinkins, Suite 106. Please contact the ASC at 803-323-3929 or [success@winthrop.edu](mailto:success@winthrop.edu). For more information on ASC services, please visit [www.winthrop.edu/success](http://www.winthrop.edu/success).

#### Attendance Policy

Winthrop University policy states that students will not receive credit for a course in which they miss 25% or more of the scheduled class meetings. If you feel that you need to miss class for a legitimate reason, I just ask that you let me know and be prepared to provide documentation if necessary. It your responsibility to contact me regarding missed work or contact students for any missed notes.

#### The Office of Victims Assistance

The Office of Victims Assistance (OVA) provides services to survivors of sexual assault, intimate partner violence, and stalking as well as educational programming to prevent these crimes from occurring. The staff assists all survivors, regardless of when they were victimized in obtaining counseling, medical care, housing options, legal prosecution, and more. In addition, the OVA helps students access support services for academic problems resulting from victimization. The OVA is located in 204 Crawford and can be reached at (803) 323-2206. In the case of an after-hours emergency, please call Campus Police at (803)323-3333, or the local rape crisis center, Safe Passage, at their 24-hour hot-line, (803)329-2800.

For more information please visit: <http://www.winthrop.edu/victimsassistance/>

*Tentative Course Schedule. Topics and reading assignments may be subject to change at the instructor's discretion. Any changes will be announced during class time.*

| <b>Date</b> | <b>Day</b> | <b>Lecture Topic</b>                              | <b>Assigned Reading</b>                                  |
|-------------|------------|---|--|
| 21-Aug      | Wed        | Introductions and Pleasantries/Hydrological Cycle | <b>Chpt. 1 pg. 1-6<br/>Chpt. 2 pg. 7-34<br/>(Browse)</b> |
| 26-Aug      | Mon        | Global Overview                                   | <b>Chpt. 3 pg. 36-90</b>                                 |
| 28-Aug      | Wed        | Global Overview (continued)                       |  |
| 2-Sep       | Mon        | <i>Labor Day – No Class</i>                       |  |
| 4-Sep       | Wed        | Precipitation                                     | <b>Chapter 4 pg. 94-164</b>                              |
| 9-Sep       | Mon        | Precipitation (continued)                         |  |
| 11-Sep      | Wed        | Snowmelt  | <b>Chapter 5 pg. 166-218</b>                             |
| 16-Sep      | Mon        | <i>Exam 1</i>                                     |  |
| 18-Sep      | Wed        | Soils and Infiltration                            | <b>Chpt. 6 pg. 220-270</b>                               |
| 23-Sep      | Mon        | Soils and Infiltration (continued)                |  |
| 25-Sep      | Wed        | Campus Field Trip                                 |  |
| 30-Sep      | Mon        | Soil Chemistry                                    | <b>Handout</b>   |
| 2-Oct       | Wed        | Evaporation/Evapotranspiration                    | <b>Chpt. 7 pg. 272-322</b>                               |
| 7-Oct       | Mon        | Evaporation (continued)                           |  |
| 9-Oct       | Wed        | <i>Exam 2</i>                                     |  |
| 14-Oct      | Mon        | <i>Fall Break – No Class</i>                      |  |
| 16-Oct      | Wed        | Groundwater                                       | <b>Chpt. 8 pg. 325-387</b>                               |
| 21-Oct      | Mon        | Groundwater (continued)                           |  |
| 23-Oct      | Wed        | Groundwater Chemistry                             | <b>Handout</b>   |
| 28-Oct      | Mon        | Stream Response                                   | <b>Chpt. 9 pg. 389-407</b>                               |
| 30-Oct      | Wed        | Event Response and Runoff                         | <b>Chpt. 9 pg. 407-456</b>                               |
| 4-Nov       | Mon        | Runoff and Floods                                 |  |
| 6-Nov       | Wed        | Erosions and Deposition                           | <b>Handout</b>   |
| 11-Nov      | Mon        | Surface Water Chemistry                           | <b>Handout</b>   |
| 13-Nov      | Wed        | Surface Water Chemistry (continued)               |  |
| 18-Nov      | Mon        | <i>Exam 3</i>                                     |  |
| 20-Nov      | Wed        | Stable Isotopes in Surface Water                  | <b>Handout</b>   |
| 25-Nov      | Mon        | Stable Isotopes in Surface Water                  | <b>Handout</b>   |
| 27-Nov      | Wed        | <i>Thanksgiving Break – No Class</i>              |  |
| 2-Dec       | Mon        | Catch up day                                      |  |
| 6-Dec       | Friday     | <i>Final Exam—11:30 am</i>                        |  |