

## **2025-26 Research Methodology & Ethics**

### **Course Outline, Classroom Expectations, & Grading Policy**

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**Class Schedule:** P1, P2, P7, P8, Rm A67

### **Course Description and Course Outcomes**

The Research Methodology and Ethics is a course where the junior high school students learn the fundamentals of scientific research and conduct their own research project. The course emphasizes on following standard procedures of research methodology, statistical methods, and data analysis skills of that are common to the various disciplines of science.

- This course involves three themes in scientific research throughout the entire school year:
  - Adapting to the scientific research process. This includes the understanding of what researchers do, and the philosophy and ethics related to how they do it.
  - Proficient in communications, i.e., technical writing and oral presentation.
  - Proficient in designing experiments for testing research hypotheses, and evaluating the results from those experiments.
- Upon completion of this course, students should be able to
  - Construct and write a well-organized and well-reasoned research proposal and scientific manuscript.
  - Design and conduct a scientifically sound experiment.
  - Collect accurate data/information from experiment and test.
  - Critically draw plausible conclusions based upon data/evidence.
  - Present technical material orally to an audience.
  - Understand and practice the peer review process.
  - Distinguish between ethical and unethical conduct in scientific research.

**Dual Enrollment with VPCC:** Students can choose to dual enroll-in this course with the statistics course MTH245 at VPCC for Spring Semester. Students can earn 3 college credits from VPCC.

### **Classroom Expectations**

It is expected that each student and teacher will work to uphold and enhance every-one's opportunity for successful learning by:

- **Being Prepared & On-time** for class. Bring all necessary materials to class EVERYDAY.
- **Being Respectful** of self and others. Disrespect may result in disciplinary actions.
- **Being Fully Present** -- Contributing one's best attention, effort, thoughts, ideas and questions. Cell phones and all other electronic devices must be turned off and put away.
- **Being Considerate** – Caring for the equipment and materials of GSST and others, and leaving a clean and neat area as one leaves.

### **Evaluation and Grading Policy**

Graded assignments include:

- Tests (TE) --- 40 points each
- Quizzes (QZ) --- 10 points each
- Homework (HW) --- 5-10 points each
- Classwork and other activities (CW) --- 2-5 points each
- Research project (RP) --- 245 points total. Points vary for different parts of the project.

Assignment due dates and time will be posted on CANVAS. In-class assignments are due at the end of the class. Electronic assignments are due by 11:59 pm of the due date. Assignments may be required to be submitted via [www.turnitin.com](http://www.turnitin.com) for plagiarism prevention.

The grade for each quarter, semester, and the entire course are assigned as the following,

Quarterly Grade		Semester Grade		Course Grade	
Points earned/Total possible points		50% Q1+ 50% Q2		50% S1+ 50% S2	
Letter grades are assigned following the percentage:					
%	90-100	80-89	70-79	60-69	<60
Grade	A	B	C	D	E

### **Assignments and Class Work Policy**

- Students can only use handouts and notes sanctioned by the teacher for each test or quiz.
- Students with excused absences will be given an extension of no more than one week to complete missed assignments.
- Late submissions of any assignments are generally not accepted. If the teacher is accepting a late assignment, the maximum points of such assignments will decrease by 10% per calendar day.
- All assignments must follow the appropriate guidelines. An assignment that does not follow the guideline or is illegible may be returned for a “Re-Do.”
- All assignments will be posted on CANVAS. It is the students’ responsibility to print the assignments if needed.

### **Tips for Success and Extra Help**

- Asking questions in class. Any question from you has the potential of being a great question.
- Do not procrastinate. The longer you wait, the more time it will take to finish the task.
- Online information is useful and convenient. But use it wisely. Do not “copy” and “paste.”
- Find a “Study Buddy,” exchange contact information and have peer tutoring.
- After School online or text tutoring with teachers.

### **A note from your instructors:**

Dr. Duscher received her PhD in Microbiology and Cell Science from the University of Florida with research spanning from squid microbiomes in space to environmental microbiology. However, Dr. Duscher's true passion lies in teaching and sharing her excitement and enthusiasm for scientific research with others. Dr. Duscher's focus in the classroom is to ensure that the students are engaged and have fun learning scientific research, along with developing important critical thinking skills that will positively impact students' future careers and beyond.

Dr. Hou earned a Ph.D in mathematics from Rensselaer Polytechnic Institute (RPI). He has conducted research in modeling soft tissues. He has taught courses of all levels at universities, and also served as mentor and advisor for several student research projects. The Junior Research class requires you to design, implement and present findings in your original research project at GSST Science Fair. In past years, our GSST students have moved on to participate in Regional, State, and International Science Fairs.