Course Title: Research Methodology

Meeting Times: Tuesdays and Thursdays 4:00—5:50 pm, at 06-2233.

Instructor: Esa M. Rantanen, Ph.D. esa.rantanen@rit.edu

Office: 01-3140 Eastman Bldg.; Tel. (585) 475-4412

Office Hours: Wednesdays, 10:00 a.m.—12:00 noon or by appointment


Other Readings: TBA

Course Description: This course offers an in-depth examination of acquiring knowledge of human behavior and performance through the observation, identification, description, experimental investigation, and theoretical explanation of phenomena, that is, methods of science. Particular emphasis is placed on design of experiments, measurement of appropriate dependent variables, manipulation and transformations of data, exploratory data analysis and data visualization, and drawing conclusions from statistical tests.

Prerequisites: N/A.

Expectations: Class participation. Active class participation is expected. Much of the material will be presented only in lectures and discussions and will not be available in textbooks or other readings.

Homework: Homework will be assigned on an ad hoc basis to supplement materials covered during class meetings. Exact instructions and due dates for each assignment will be provided. No late homework will be accepted.

Presentations: Short presentations will be assigned to each student, including a written outline. The presentations will be graded on their accuracy and information content and the student’s level of preparedness.

Exams: There will be an in-class, closed book, closed notes comprehensive final exam.

Grading:

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<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Class participation</td>
<td>20%</td>
<td>A: ≥ 90 %</td>
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<tr>
<td>Homework</td>
<td>20%</td>
<td>B: 80-89 %</td>
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<td>Presentations</td>
<td>20%</td>
<td>C: 70-79 %</td>
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<td>Final Exam</td>
<td>40%</td>
<td>D: 60-69 %</td>
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<td>TOTAL</td>
<td>100%</td>
<td>F: &lt; 60 %</td>
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Class Policies: Documented medical, bereavement, or religious reasons are valid excuses for absence. Any other absences must be approved and arrangements for make-up assignments made prior to the class in question.

Cheating: This includes plagiarism; the Institute and College of Liberal Arts policies on cheating will be followed and most severe sanctions permitted advocated.

Course Website: https://mycourses.rit.edu
Course Schedule:

The course will cover the topics in approximately the following order; unless otherwise noted, the chapter and page numbers refer to the course text, Rosenthal & Rosnow, 2008.

1. **Tuesday, Dec. 3:** Introductions, syllabus; epistemology and ways of knowing
2. **Thursday, Dec. 5:** Purposes and challenges of behavioral research (ch. 1).
3. **Tuesday, Dec. 10:**
   a. Philosophical foundations; justification and context (ch. 2).
4. **Thursday, Dec. 12:** Ethical considerations and protection of human subjects (ch. 3)
5. **Tuesday, Dec. 17:** Reliability and validity of measures (ch. 4).
6. **Thursday, Dec. 19:** Experimental design; an example.

Christmas Break

7. **Tuesday, Jan. 6:**
   a. Subjective observations and objective measures, direct and indirect measures, a taxonomy of measures.
8. **Thursday, Jan. 8**
   a. Judgments and rating scales; NASA TLX (Task Load Index)
9. **Tuesday, Jan. 13:**
   a. Composite Variables
10. **Thursday, Jan. 15:**
    a. Critical Incidents
11. **Tuesday, Jan. 20:** Experimental Designs
12. **Thursday, Jan. 22:** Quasi-Experimental Research
13. **Tuesday, Jan. 27:** Sampling
14. **Thursday, Jan. 29:**
    a. Statistical model specification
15. **Tuesday, Feb. 3:** Exploratory Data Analysis (EDA)
16. **Thursday, Feb. 5:**
    a. Outliers (and what to do with them)
17. **Tuesday, Feb. 10:** TBA
18. **Thursday, Feb. 12:** TBA
19. **Tuesday, Feb. 17:** TBA

20. **Thursday, Feb. 19:** Final exam instructions and review questions