FOR 501.01: Research Methods

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Tom DeLuca, 402 SC, x4425 thd@forestry.umt.edu

Classroom & Time: 112 Journalism, 9:10 - 10:30 TR

Purpose:
To provide graduate students in Forestry, Recreation, and Resource Conservation with a solid foundation for attacking research program in biophysical and social sciences. This course has been designed to enhance students ability to critically assess literature and research through development of a broader and deeper understanding of scientific methods and experimental design. This course also endeavors to facilitate the preparation of a thesis study plan.

Course Outline, Topic and Tentative Date and Reading

1. Course Introduction (Bill and Tom) 09/04

2. Scientific Theory and Approach (Tom)
   a. Introduction 09/06
   b. Hypothesis and hypothesis testing 09/11  C & S Ch. 1
   c. Ecological research planning 09/13  Ford Ch. 2
   d. Defining research problems 09/18  Ford Ch. 3
   e. Development of the research plan 09/20  Ford Ch. 4
   f. Chance, imagination, and intuition 09/25  Beverage Ch. 3, 5 & 6
   g. Observation, record keeping, and failure 09/27  C&S Ch. 5, Bev Ch. 8

2. Science Revisited (Bill)  Bill, should these be Chalmers rather than Babbie?
   a. Observation & Experience 10/02  Babbie Ch. 1 & 2
   b. Experiments & Induction 10/02  Babbie Ch. 3 & 4
   c. Falsification 10/09  Babbie Ch. 5, 6 & 7
   d. Paradigms 10/11  Babbie Ch. 8 & 9
   e. Relativism & Realism 10/16  Babbie Ch. 10 & 15
   f. Assumptions of Research 10/18  Hudson & Ozanne (1988),  
       Patterson & Williams (1998)

EXAM I 10/23

3. The Critical Review (Tom)  
   a. Publication credibility and the peer review process 10/25  Papers as assigned
   b. Effective literature searching 10/27
   c. The critical review 10/30

Assignment Due: Critical Review
4. Social Science Experimental Methods (Bill)
   a. Introduction 11/01 Babbie Ch. 1 & 3
   b. Social Science Research Design 11/06 Babbie Ch. 4 & 5
   c. Introduction to Survey Research 11/08 Babbie Ch. 9
   d. Cognitive processes 11/13 Sudman et al. Ch. 3
   e. Introduction to Qualitative Methods 11/15 Strauss/Corbin Ch.1
      Henderson, Ch. 1

Assignment Due: Survey Critique

5. Data Collection (Bill)
   a. Sampling concepts 11/20 Babbie Ch. 7

?? 11/27

6. Biophysical Experimental Design (Tom)
   a. Design principles 11/29 C & S Ch. 3
   b. Randomization and covariates 12/04 C & S Ch. 3
   c. Trial Structure 12/06 C & S Ch. 4
   d. Analytic Techniques, Parametric/Non-Parametric 12/11 C & S Ch. 6

Assignment Due: Experimental Design

7. Review 12/13

EXAM II 12/18

Evaluation:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Percent of Grade</th>
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<tbody>
<tr>
<td>Exams</td>
<td>60 (2 at 30% each)</td>
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<tr>
<td>Assignments</td>
<td>30 (3 at 10% each)</td>
</tr>
<tr>
<td>Class Participation</td>
<td>10</td>
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</tbody>
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Policies:

1. Any student with learning disabilities or disadvantages needing special dispensation or assistance will inform the instructors immediately following the first class.

2. Late submissions are not encouraged. A standard policy of subtracting 10% per day late is fair to everyone (students, instructors, and administration). Extraordinary circumstances requiring absence (such as a death in the family) should be discussed with the instructor in advance. Leave from college due to medical conditions can be documented with doctor’s certificates.

3. All course activities are governed by the Student Conduct Code, which embodies the ideals of academic honesty, integrity, human rights, and responsible citizenship.
**Required Textbook:**


**Other Resources:**


Other readings from published literature in biophysical and social sciences.