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Fall 9-1-2001

FOR 501.01: Research Methods

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**Research Methods
Forestry 501**

Fall 2001 Course Syllabus

Instructors: Bill Borrie, 405A SC, x4286 borrie@forestry.umt.edu
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 through the 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	Date	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:

Unit	Percent of Grade	
Exams	60	(2 at 30% each)
Assignments	30	(3 at 10% each)
Class Participation	10	

Policies:

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

Chalmers, A. F. (1999). *What is this thing called Science ? Third Edition* Indianapolis, IN: Hackett.

Other Resources:

Babbie, E. 1998. *The Practice of Social Research. Eighth Edition.* Belmont, CA: Wadsworth.

Beverage, W.I.B. 1957. *The art of scientific investigation.* Vintage Books (Random House). New York

Collins, C. and F. Seeney. 1999. *Statistical experiment design and interpretation.* John Wiley & Sons. New York.

Ford, E.D. 2000. *Scientific method for ecological research.* Cambridge University Press. New York.

Henderson, K.A. 1991. The philosophy of recreation, parks and leisure research. *Dimensions of Choice: A qualitative approach to recreation, parks and leisure research.* State College, PA: Venture Publishing.

Hudson, L.A., and J.L. Ozanne 1988. Alternative ways of seeking knowledge in consumer research. *Journal of Consumer Research, 14,* 508-521.

Patterson, M.E., and D.R. Williams (1998). Paradigms and problems: the practice of social science in natural resource management. *Society and Natural Resources, 11,* 279-295.

Strauss, A. and J. Corbin (1998) *Basics of Qualitative Research : Techniques and Procedures for Developing Grounded Theory (Second Edition).* Newbury Park, CA : Sage.

Sudman, S., N. M. Bradburn, and N. Schwarz (1996). *Thinking About Answers: The application of cognitive processes to survey methodology.* San Francisco : Jossey-Bass.

Other readings from published literature in biophysical and social sciences.