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Fall 9-1-2000

### FOR 303.01: Introduction to Geographic Information Systems

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*The University Of Montana*

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FOR303: INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS  
AUTUMN SEMESTER 2000

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Instructor: LLOYD P. QUEEN  
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Text: K.C. CLARKE. 1999. *Getting Started with Geographic Information Systems*. 2<sup>nd</sup> ed.  
Prentice-Hall. Required reading.

Class Times: Lecture: TR 8:10 - 9:00 FOR301  
Labs: TR 9:10-11:00 JOUR106  
Office: TR 1:00 - 3:00 SC428B (other times by appointment)

Course Description: Introduction to the application of Geographic Information Systems (GIS) to natural resource assessment. Our course will first cover GIS concepts and techniques, and will demonstrate the use of GIS through study of applications and hands-on lab exercises. The text provides entry-level material on GIS. Additional outside readings in the student's area of interest are recommended (required of independent study registrants). Please note that the order of lecture topics does not exactly match the sequence in the required text. Please try to follow the reading assignments in the syllabus: reading the assigned material before class will be beneficial. The course is intended to provide an educational foundation for GIS; and does provide experience with but not training on particular software/hardware platforms. This course is based on the nationally standardized National Center for Geographic Information and Analysis (NCGIA) curriculum.

Course Goals: Upon completion of the course the student will be able to:

- Understand and interpret GIS terminology.
- Plan, design, and implement GIS-based approaches to natural resources problem solving.
- Explain the advantages and limitations of GIS-based approaches in the context of appropriate and inappropriate uses of these systems.
- Understand the theory, methods, and techniques of GIS analysis.
- Recognize technical as well as management issues in GIS.
- Appreciate the significance of data issues and the importance of maintaining a data and applications focus on the technology.
- Gain a broader exposure to GIS as well as a better idea for where GIS fits into existing management and planning decision processes.
- Better understand the wide variety of GIS software and hardware options that exist today.

Grading: Grades will be assigned on the basis of curved scores totaled for the following:

First Exam ..... 25%  
Second Exam ..... 25%  
Final Exam..... 35%  
Lab Exercises .....15%

WEEK	CLASS	DATE	SCHEDULED TOPIC	READINGS
1	1	9/5	Introduction to GIS	CH. 1
	2	9/7	Functional Definitions of GIS	CH. 9
2	3	9/12	Map Fundamentals	CH. 2
	4	9/14	Map Fundamentals	CH. 2
3	5	9/19	Data Compilation	CH. 3
	6	9/21	Data Preprocessing	CH. 3
4	7	9/26	Raster Data Modeling	CH. 4
	8	9/28	Raster Data Modeling	CH. 4
5	9	10/3	Vector Data Modeling	CH. 4
	10	10/5	Vector and Object Models	CH. 4
6	11	10/10	First Exam	
	12	10/12	Attribute Data Models	CH. 5
7	13	10/17	Attribute Data Models	CH. 10
	14	10/19	Database Management Systems	CH. 5
8	15	10/24	Data Preprocessing	CH. 4
	16	10/26	Data Editing	CH. 4
9	17	10/31	Querying Data	CH. 5
	18	11/2	Project Design and Analysis	CH. 6
10	19	11/7	HOLIDAY	
	20	11/9	Data Analysis	CH. 6
11	21	11/14	Spatial Statistics	tba
	22	11/16	Analysis Guest Lectures	
12	23	11/21	Second Exam	
	24	11/23	HOLIDAY	
13	25	11/28	Global Positioning Systems	tba
	26	11/30	GIS Outputs	CH. 7
14	27	12/5	GIS Outputs	CH. 7
	28	12/7	Data Quality	CH. 8
15	29	12/12	Managing a GIS	CH. 8
	30	12/14	GIS and Remote Sensing	tba
16	31	12/20	FINAL EXAMINATION 10:10 – 12:10	

TENTATIVE LAB SCHEDULE

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Note that labs meet in Journalism Room 106 unless specified otherwise. Labs account for 15% of your overall course grade.

WEEK	LAB TOPIC
1	No labs this week
2	Lab #1 GIS Resources on the World Wide Web
3	Lab #2 Analog Base Maps
4	Lab #3 Database Management Systems
5	Lab #3 Continued
6	Lab #4 Introduction to ArcView
7	Lab #4 Continued
8	Lab #5 Merging DBMS and ArcView
9	Lab #6 Merging GPS and GIS Point Data
10	Lab #6 Continued
11	Lab #7 Map Measurements
12	Lab #8 Neighborhood Analysis
13	Lab #9 Map Overlays
14	Lab #10 Project Design
15	Lab #10 Continued
16	Finals Week – No lab this week