

BIOLOGICAL ENGINEERING 7304
ADVANCED NATURAL RESOURCES ENGINEERING
CREDIT HOURS: 3 (3 HOURS LECTURE)
SPRING SEMESTER 2009
ROOM 115 E.B. DORAN BUILDING
4:40 - 6:00 P.M. T TH

COURSE DESCRIPTION: BE 7304 Advanced Natural Resource Engineering
(3) Advanced topics in statistical hydrology, flow theory, evapotranspiration, transport of pollutants, drainage, irrigation, erosion, sediment transport, and sedimentation applied to rural fields and watersheds.

OBJECTIVE: To enable the student to analyze and design natural resource control systems.

INSTRUCTOR: Dr. Richard L. Bengtson, Room 177, E.B. Doran Building, Phone: 225-578-1056, e-mail: bengtson@lsu.edu

TEXT: MICROCLIMATE - THE BIOLOGICAL ENVIRONMENT by Norman J. Rosenberg, Blaine L. Blad, and Sashi B. Verma.

<u>GRADING OUTLINE:</u>	Homework and Quizzes	25%
	Mid-Term Examination	25%
	Research Paper	25%
	Final Examination	25%

RESEARCH PAPER: Subject to be announced.

Homework will be due one (1) week after it is assigned.

Quizzes and tests cannot be made up.

ACADEMIC MISCONDUCT:

"Academic Misconduct, as defined in the Code of Student Conduct, will not be tolerated in this course. It is my responsibility as the instructor to report such incidents to the Department of Judicial Affairs. It is your responsibility to understand the Code of Student Conduct and make sure your actions and perceived actions are not considered as misconduct. Ignorance of these rules will not be an adequate defense in such cases. Go to <http://appl003.lsu.edu/slas/judicialaffairs.nsf/index> for a copy of the current Code of Student Conduct."

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<u>CLASS</u>	<u>DATE</u>	<u>TOPIC</u>
1	JAN 13	Introduction to soil erosion
2	JAN 15	Mechanics of erosion
3	JAN 20	Sedimentation
4	JAN 22	Predicting rainfall erosion
5	JAN 27	Universal Soil Loss Equation
6	JAN 29	Universal Soil Loss Equation
7	FEB 3	Modified USLE
8	FEB 5	Introduction to terraces
9	FEB 10	Design of terraces
10	FEB 12	Design of terraces
11	FEB 17	Sediment transport
12	FEB 19	Energy input to the biosphere
13	FEB 24	MARDI GRAS HOLIDAY
14	FEB 26	The radiation balance
15	MAR 3	Soil heat flux and temperature
16	MAR 5	MID-TERM EXAMINATION
17	MAR 10	Sensible heat transfer
18	MAR 17	Wind and turbulent transfer
19	MAR 19	Wind and turbulent transfer
20	MAR 24	Atmospheric humidity
21	MAR 26	Evaporation
22	MAR 31	Evapotranspiration
23	APR 3	Water balance method
24	APR 7	SPRING BREAK
25	APR 9	SPRING BREAK
26	APR 14	Mass transport method
27	APR 16	Energy balance methods
28	APR 21	Climatological methods
29	APR 23	Van Bavel method
30	APR 28	Resistance methods
31	APR 30	Class presentations
32	MAY 5	FINAL EXAMINATION TUESDAY 5:00 to 7:00 P.M.

The above schedule is tentative. Test dates will be confirmed at least one week ahead. Homework will be due one (1) week after date assigned.