OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE: January 2006
COURSE REVISED IMPLEMENTATION DATE: September 2010
COURSE TO BE REVIEWED: January 2014
(four years after UPAC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

GEOG 307	Geography	4
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

Urban Climatology
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This course explores the climatic effects of urbanization with a focus on the collection and analysis of urban climate data. Human-weather interaction in the urban setting and potential mitigation techniques of negative impacts are also examined.

PREREQUISITES: GEOG 201
COREQUISITES:
PRE or COREQUISITES:

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 75
STRUCTURE OF HOURS:

Lectures:	**40**	Hrs
Seminar:		Hrs
Laboratory:	**20**	Hrs
Field experience:	**15**	Hrs
Student directed learning:		Hrs
Other (specify):		Hrs

TRAINING DAY-BASED INSTRUCTION:
Length of course:
Hours per day:

OTHER:
Maximum enrolment: **25**
Expected frequency of course offerings: Once every other year
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☒ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☒ Yes	☐ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☐ Yes	☒ No

Course designer(s): **Steven Marsh**
Department Head: **Dr. Ken Brealey** Date approved: **November 2009**
Supporting area consultation (Pre-UPAC) Date of meeting: **November 27, 2009**
Curriculum Committee chair: Date approved: **January 2010**
Dean/Associate VP: **Dr. Jacqueline Nolte** Date approved: **January 2010**
Undergraduate Program Advisory Committee (UPAC) approval Date of meeting: **January 29, 2010**

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

1. demonstrate an understanding of the meteorological principles of the urban climate system,
2. use field methods to collect and analyze urban weather data,
3. demonstrate an understanding of the effects of the urbanization on the atmosphere,
4. theorize and develop strategies that mitigate negative urban-climate impacts.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

The format of the course includes lectures, guest speakers, class discussions, weekly labs, and field work.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☒ Examination(s) ☒ Portfolio assessment ☐ Interview(s)

☐ Other (specify): ☐ PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. Examples texts for this course might be:]*

De Dear, Richard, et al., (eds), 1999. Biometeorology and Urban Climatology at the turn of the millennium: selected papers from the conference ICB-ICUC'99. Geneva: World Meteorological Society.

Moussiopoulos, N., 2003. Air Quality in Cities. New York: Springer.

Klysik, K., T.R. Oke, K. Fortuniak, C.S.B. Grimmond, and J. Wibig (eds.), 2004. Proceedings Fifth International Conference on Urban Climate, Vols. 1 and 2.

Oke, T.R., 1987. Boundary Layer Climates. New York: Routledge

Jacobson, Mark Z., 2002. Atmospheric Pollution. History, Science, and Regulation. Cambridge: Cambridge University Press.

Brimblecombe, Peter and Robert L. Maynard (eds.), 2001. The Urban Atmosphere and Its Effects. London: Imperial College Press.

Gartland, Lisa, 2008. Heat Islands. Understanding and Mitigating Heat in Urban Areas. London: Earthscan.

SUPPLIES / MATERIALS:

STUDENT EVALUATION: *[An example of student evaluation for this course might be:]*

Labs, presentations, reports	40-60%
Exams	40-60%

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

Lecture Topics:

1. Urban climates.
2. Urban radiation budgets.
3. Anthropogenic heat production.
4. Urban energy balances.
5. Urban roughness and winds.
6. Urban aerosols.
7. Urban effects on cloud and precipitation.
8. Urban water balance.
9. Urban Heat Island.
10. Urban moisture island.
11. Mitigation techniques