**Course Description**

This course provides an overview and understanding of the technology, techniques and capabilities for remote sensing of the environment, through an investigation of the basic concepts of remote sensing and electromagnetic energy, interpretation of remotely sensed imagery, and key remote sensing applications.

**Required Readings**

We will not use a textbook. Instead, all class materials will be available electronically on a class web site. If you are interested in an introductory remote sensing text, consider:


**Students with Special Needs**

South Dakota State University is committed to providing equal access to University programs and services for all students. Under University policy and federal and state laws, students with documented disabilities are entitled to reasonable accommodations to ensure the student has an equal opportunity to perform in class. If any member of the class has such a disability and needs special academic accommodations, please notify me and make the appropriate arrangements with the Office of Disabilities Services. The ODS is located in Room 145 of Binnewies Hall. To schedule an appointment call (605) 688-4504 and request to speak with Nancy Hartenhoff-Crooks, the Coordinator of Disability Services. Reasonable accommodations may be arranged after the Office of Disabilities Services has verified your situation. Do not hesitate to contact me if any assistance is needed in this process.

**Academic Freedom and Responsibility**

Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students
should be free to take reasoned exception to the data or views offered in any course of study and to
reserve judgment about matters of opinion, but they are responsible for learning the content of any
course of study for which they are enrolled. Student who believe that an academic evaluation reflects
prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards
should first contact the instructor of the course to initiate a review of the evaluation. If the student
remains unsatisfied, the student may contact the department head and/ or dean of the college which
offers the class to initiate a review of the evaluation.

**Cheating and Dishonesty Policy**
The consequences of academic cheating and dishonesty range from any and all plagiarized or
compromised assignments, tests, and other forms of evaluations being given zero credit as per offense
to a student being given a failing grade for the class in which the offense took place. There is also the
possibility that any student who has committed a cheating offense may face disciplinary probation or
expulsion from the University. The full policies are found in Chapter 1 of the Student Code (01:

**Absence Policy**

Attendance in both lectures and labs is expected —there are no make-up labs. Please be there !

Absence due to personal reasons:
Any exceptions to the faculty member’s written attendance policy due to verified medical reasons,
death of a family members or significant other, or verified extenuating circumstances judged
acceptable by the instructor or the Office of Academic Affairs, will be honored. If a student has an
accident, falls ill, or suffers some other emergency over which he/she has no control, the student needs
to gather whatever documentation is available (e.g., copies of repair or towing bills, accident reports or
statements from health care provider) to show the instructor. Such exceptions must be communicated
and negotiated between the student and faculty member prior to the absence whenever possible.
Absences for vacations or breaks, personal interviews do not constitute a valid reason for absence.

Absence due to approved university-sponsored/recognized trips:
Faculty and administration will honor officially approved absences where individuals are absent in the
interest of officially representing the University. Appropriate sanctioned activities include:
Collegiate club sports and competitions; Conferences and workshops recognized by the University not
related to academics; Commitments on behalf of the University (Students’ Association, Band, Choir,
etc.); Intercollegiate athletics (refer to page 5 of this document for Student-Athlete Class Attendance
Policy); and Professional activities recognized by the University related to academics (professional
conference attendance, etc.)

Requests for excused absences must be submitted one week prior to the trip or event. Students must
present the completed approved trip absence card to the faculty member prior to the trip or event to
have an official excused absence. Faculty members are not required to honor incomplete or late cards.

Students with official excused absences:
Students with excused absences will be given appropriate make up work or instructor-determined
equivalent opportunities for obtaining grades as students who were in attendance. Students with
official excused absences are not to be penalized in course progress or evaluation. However, should excused absences be excessive, the faculty member may recommend withdrawal from the course(s) or a grade of incomplete to the student.

Mediation on absence:
Arrangements should be negotiated with faculty members. If this is not possible, the students should go first to the department head, and if necessary, next to the dean. The student may contact the Office of Academic Affairs if conflict cannot be resolved at these levels.

Requirements and Grading

Mid-term exam (30%)
Labs 1-6 (36%)
Final Lab Project (34%)

90-100% of total points = A
80-89% = B
70-79% = C
60-69% = D
<60% = F (fail)

There will be no “extra credit” exercises. Note, you need to get at least a “C” grade if you are a GIS Major (or you will have to repeat this class).

Exam Policy

1. There will be no opportunity to take a make-up exam for unexcused absences; the student will earn a "0" for that exam.
2. For anticipated, excused absences, it is the student's responsibility to contact the instructor PRIOR to the exam, to schedule a make-up exam. This would be the case for excused extracurricular events such as academic, music, or athletic events.
3. Students may also be excused from taking the regularly-scheduled exam for unanticipated reasons such as sickness or family crisis. Students are required to document (for example, note/call from doctor/nurse/dean of students) that their absence was excusable. It is the student's responsibility to contact the course instructor on the day of the exam, if possible, and then on the day of the student's return so that the make-up exam can be scheduled.
4. Any make-up exams, taken for any reason, may be expected to be more difficult, with a higher percentage of essay type questions, and possible one-on-one discussions with the instructor.
5. After grading, exams/quizzes will be handed back in class and the correct answers discussed. Students having questions on how an exam/quiz was graded must talk to the instructor within one week of the day the exam/quiz was handed back in class, no adjustments to grades will be made at a later time. This time frame applies to all graded materials (e.g. lab reports).
Lab Procedures

1. There will be no make-up labs.

2. Students who know they will be absent from an upcoming lab for legitimate reasons, must personally contact their lab instructor before each upcoming lab that will be missed.

3. Students who are absent for health reasons will have to provide documentation (for example, note from the nurse/doctor/dean of students). If students are absent for some other reason, the instructor will make a judgment call.

4. Students with unexcused absences will receive a "0" for the lab activity they missed if they do not submit lab reports. Students with excused absences who are unable to attend lab will receive pro-rated scores.

5. Lab reports will be collected at the very beginning of the period that it is due. Any lab report submitted after the beginning of the class will be considered late and a penalty of 10 percent per day or part thereof will be deducted from the score it receives, after 10 days late it will not be graded.
Lecture 1: Introduction
Lecture 2: Electromagnetic radiation & Introduction to satellite data display
Lab. 1: Introduction to ENVI for display and analysis of satellite data (assessed practical)
Lecture 3: Spectral properties of materials
Lab. 2: Radiometer field trip (assessed practical)
Lecture 4: Satellite remote sensing systems and their “resolutions”
Lab. 3: The “Resolutions” of remotely sensed data (assessed practical)
Lecture 5: Geometric correction & Atmospheric correction
Lecture 6: Mid Term Exam (assessed)
Lecture 7: Information extraction: Spectral transformations
Lab. 4: Spectral transformations (assessed practical)
Lecture 8: Information extraction: Land surface classification
Lab. 5: Spectral Unmixing (assessed practical)
Lecture 9: Information extraction: Change detection
Lab. 6: Change detection (assessed practical)
Lecture 10: Overview of remote sensing applications
Lab. 7: Lab. student project set and student project time
Lecture 11: Space agency satellite product generation and distribution – MODIS land products
Labs. 8 & 9: Lab. student project time
Lecture 12: Summary & student project power point presentations by instructor (assessed)

GEOG-484-S01
Class Schedule
david.roy@sdstate.edu (GEOG-484-S01)
### Calendar for August 2015 (United States)

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- **Lecture 1**

Phases of the moon: 6:14:22:29:
## Calendar for September 2015 (United States)

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**Lectures:**
- 3: Lecture 2
- 15: Lab. 1
- 22: Lab. 2
- 29: Lab. 3
- 3: Lecture 3
- 17: Lecture 4

**Phases of the Moon:** 5: Full Moon
13: New Moon
21: First Quarter
27: Last Quarter

**Holidays and Observances:**
- 7: Labor Day
# GEOG-484-S01 Remote Sensing

## Calendar for October 2015 (United States)

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**Phases of the moon:** 12:00 12:00 20:00 27:00

**Holidays and Observances:** 12: Columbus Day (Most regions), 31: Halloween
### Calendar for November 2015 (United States)

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**Phases of the moon:** 3:00, 11:00, 19:00, 25:00

**Holidays and Observances:** 11: Veterans Day, 26: Thanksgiving Day
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**Phases of the moon:** 3:00, 11:00, 18:00, 25:00

**Holidays and Observances:**
- 24: Christmas Eve
- 25: Christmas Day
- 26: Day After Christmas Day
- 31: New Year's Eve