

# San José State University Department of Geography

## Geog181: Remote Sensing

<b>Class Days/Time:</b>	Thursday evenings: Class 6:00 – 7:30, and Lab 8:00 – 10:30
<b>Classroom:</b>	Washington Square Hall 111 / 113
<b>Instructor:</b>	Gary M. Pereira
<b>Instructor's Office:</b>	Washington Square Hall 111
<b>Office Hours:</b>	Monday 2:00 - 5:00, Thursday 4:00 - 5:00, and by appointment
<b>Email:</b>	<a href="mailto:gary.pereira@sjsu.edu">gary.pereira@sjsu.edu</a>

### Course Description

The purpose of this course is to explore the acquisition, interpretation, and transformation of spatial data obtained from airborne and satellite platforms, for a variety of applications. Wired and wireless sensor networks, tags, and ancillary technologies will also be explored. Students will understand the relations between remotely sensed data and geomorphic, biophysical, and anthropogenic earth features; the strengths and weaknesses of various forms of data; current trends; social implications; and how remote sensing of the environment can be used to solve real-world problems. There are no prerequisites, other than a willingness to engage with high school algebra.

### Course Goals and Learning Objectives

At the conclusion of this course, students should have acquired the ability to process various sources of data using IDRISI software for the purposes of visualizing, analyzing, classifying, interpreting, and modeling Earth system processes and features. Students should have understood meaning and uses of various standard algorithms and methodologies of remote sensing and should have acquired the ability to use them for their own purposes.

### Texts and Readings

All required materials, including lab assignments, data, and homework assignments are available from the instructor on CD.

### Assignments and Grading Policy

Undergraduate (Geog181):

- a) **Lab assignments:** Eight of ten laboratory assignments must be completed. Each comprises 10% of the total grade. The directions and data for each assignment are posted on Canvas.
- b) **Homework:** Each of two homework assignments comprises 10% of the final grade. You will be asked to summarize and discuss research and survey articles posted on Canvas. Each report should be four pages minimum in length.

Graduate (Geog281):

- a. Same as undergraduate.
- b. One homework assignment and one project must be completed, each 10%.  
**Project:** Download, process, and analyze data for a project of your choice, with instructor's approval. Write a 4 page minimum report and give a short oral presentation.

Assignment 1	10%
Assignment 2 or project	10%
Lab reports	80%
<b>Total</b>	<b>100%</b>

### Grading information:

98% and above	A+
94% - 97%	A
93% - 90%	A-
89% - 87%	B+
86% - 84%	B
83% - 80%	B-
79% - 77%	C+
76% - 74%	C
73% - 70%	C-
69% - 67%	D+
66% - 64%	D
63% - 60%	D-
<b>below 60%</b>	<b>F</b>

### Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Students should be aware of the current deadlines and penalties for adding and dropping classes.

Information on add/drops are available at <http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-324.html> .  
Information about late drop is available at <http://www.sjsu.edu/sac/advising/latedrops/policy/> .

### University Policies

#### Academic integrity

Students should know that the University's [Academic Integrity Policy is available at http://www.sa.sjsu.edu/download/judicial\\_affairs/Academic\\_Integrity\\_Policy\\_S07-2.pdf](http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf). Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for [Student Conduct and Ethical Development is available at http://www.sa.sjsu.edu/judicial\\_affairs/index.html](http://www.sa.sjsu.edu/judicial_affairs/index.html).

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

### **Campus Policy in Compliance with the American Disabilities Act**

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

### **Student Technology Resources**

Computer labs for student use are available in the Academic Success Center located on the 1<sup>st</sup> floor of Clark Hall and on the 2<sup>nd</sup> floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

### **Learning Assistance Resource Center**

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. [The LARC website is located at http://www.sjsu.edu/larc/](http://www.sjsu.edu/larc/).

### **SJSU Writing Center**

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. [The Writing Center website is located at http://www.sjsu.edu/writingcenter/about/staff/](http://www.sjsu.edu/writingcenter/about/staff/).

### **Peer Mentor Center**

The Peer Mentor Center is located on the 1<sup>st</sup> floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering "roadside assistance" to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop –in basis, no reservation required. The Peer Mentor Center website is located at <http://www.sjsu.edu/muse/peermentor/>

## Geog181 Spring 2014 Course Schedule

*Please note that the course calendar is subject to change with fair notice.*

Week	Date	Topics, Readings, Deadlines
1	1/22	Topics: electromagnetics, photointerpretation. Lab 1: photointerpretation
2	1/29	Topic: multispectral technologies Lab 2: multispectral data
3	2/5	Topic: image enhancement, transformation Lab 3: Image enhancement
4	2/12	Topic: data transformation Lab 4: transformations
5	2/19	Topic: unsupervised classification Lab 5: unsupervised classification
6	2/26	Topic: supervised classification Lab 6: supervised classification
7	3/5	Topic: classification methodologies, segmentation, advanced techniques
8	3/12	Topic: thermal, passive microwave, RADAR, LIDAR Lab 7: microwave remote sensing
9	3/19	Topic: sensor webs Lab 8: thermal remote sensing Due: homework 1
10	3/26	No class.
11	4/2	Topic: remote sensing of vegetation Lab 9: multispectral vegetation
12	4/9	Topic: remote sensing of agriculture, the urban landscape, and anthropogenic change
13	4/16	Topic: remote sensing of water Lab 10: remote sensing of the ocean
14	4/23	Topic: remote sensing of ice, soils and landforms Lab 11: hyperspectral remote sensing of soils
15	4/30	Topic: visualization, modeling, simulation, projection, and global change Due: homework 2
16	5/7	Presentations. All outstanding lab evaluations are due at this time.