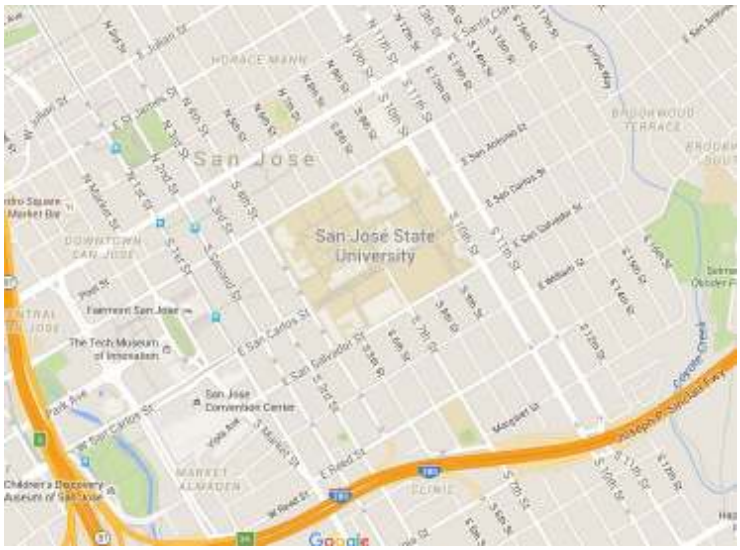
San José State University Department of Geography
Geog186: FIELD STUDY in PHYSICAL GEOGRAPHY Spring 2016

Classroom:	Washington Square Hall 111
Class Days/Time:	Friday, 9:00AM – 3:00PM
Instructor:	Gary M. Pereira
Email:	gary.pereira@sjsu.edu
Office Location:	Washington Square Hall 111
Office Hours:	Monday 2:00 - 5:00 and by appointment

Course Description

This course engages student in the process of organizing and implementing a research project in physical geography. Specifically, students will investigate patterns of temperature, humidity, wind speed, and other physical and social attributes within the immediate vicinity of the San Jose State University campus, as pictured below. Handheld devices and field notebooks will be used to gather data at specific locations and times every Friday, and possibly at other times and days depending on student availability. These data will be interpreted and transcribed into a geospatial database and preliminary maps and analyses regarding micrometeorological conditions will be generated. Students will investigate a range of topics central to physical geographic field work, including the effects of sampling schemes, instrumental constraints, biases, uncertainties, and hypotheses regarding the presence and nature of temperature patterns and correspondences to specific patterns of land use, land cover, hydrological conditions, and 3D geometries.



Course Learning Outcomes

Upon successful completion of this course, students shall have demonstrated fulfillment of departmental objective number 1, as well as objectives 5 through 9, as listed below:

1: Demonstrate and analyze knowledge of the facts, processes, and methods of environmental Geography.

Through the processes of observational data gathering, online data mining, establishing scaling relationships, sampling methodologies, hypothesis testing, and mathematical, statistical, and algorithmic analysis and modeling, the student shall experience, within the limited physical domain of downtown San Jose, the nature of environmental geography.

4: Demonstrate knowledge and analyze of the facts and methods of map and imagery interpretation.

Maps and images shall be used as a basis for direct data gathering in the field, and serve as important sources of data themselves.

5: Prepare written and verbal presentations that report their geographical discoveries through analyses of appropriate documents, primary data, and/or archival data.in professional/technical styles.

Primary data read directly from instruments, as well as additional qualitative observations, shall be entered by hand in field journals; these are then transferred to electronic spreadsheets.

6: Prepare maps and other geographical graphics that report their discoveries through analyses of appropriate documents, primary data, and/or archival data.

Photographs of site conditions shall also be obtained along with the gathering of numerical and linguistic primary data; all of this shall become part of a geospatial database (ArcGIS), which will then be used to prepare maps and graphics.

7: Explain the spatial connectivity of human societies and environments at local, regional and global scales.

Since the primary object of this work is to examine the heat signature of SJSU and downtown San Jose, and since the heat signature of any large urban area is heavily influenced by the products of human activity, spatial connectivity at the local scale is central to this course. In the process of forming hypotheses, recent literature examining urban microclimates at the regional and global scales shall be examined and discussed.

8: Explain that solving geographical problems is based on experiential analyses of primary and archival data through the methods of the sciences and social sciences.
This class not only examines and describes, but also carries out the methods of science – those likely to be of service in a geographical careers – through direct experience.

9: Appreciate that geography as an academic and professional discipline offers important knowledge as well as analytical techniques which have application in solving important human problems.
The project forms the basis for further research, presentation and publication on the human problem of urban heat.

Required Readings

There are no required readings for this class.

Assignments and Grading Policy

1: Field study project (60% of grade)

Teams of two people (or singly on occasion) will repeatedly gather data for three key attributes of atmospheric conditions at specific points in the immediate neighborhood of SJSU. The instrument that will be used for this work is the “Ambient Weather WM-3 Handheld Weather Meter pictured here:

Prior to every data gathering expedition, students must confirm that the WM-3 serial number matches the number written on the back cover of the field notebook. The instructor or a single volunteer will have recently calibrated the instrument to the ambient air temperature just outside the Washington Square Hall 4th street entrance. Each team will be assigned a route and given a map; four of these routes are shown above.

On the first available full page in the notebook, each team must provide a short header of a few lines containing the following information:

- **date (e.g., 2/5)**
- **name(s) of student(s)**
- **route letter designation (from the map)**
- **calibration temperature and time**
- **general weather conditions (be brief: calm, windy, sunny, cloudy, etc.)**

Then, at its own pace, each team will follow the route indicated by the data points on the map corresponding to that route. Some teams will be instructed to follow the route in ascending order, while others will follow it in descending order. Each observation event for locations 1 through 20 for each route should occupy one or two lines in the notebook. The second line is optional. Skip a line between observations. Each observation should be entered as follows:

location# (from map) **time** **temperature** **humidity**

wind speed and direction if any (N, NE, E, etc.) **brief observations (external doc if necessary)**

When taking a temperature reading, keep the WM-3 approximately 5 feet above the ground (+/- 1 ft.). If it is too low it will pick up excess heat from the ground and if it is too high it may be affected by natural cooling aloft. Keep the WM-3 away from direct sunlight or body heat. Never hold it in the palm of your hand, even when taking a reading. Keep it in its case between readings, in an external backpack or bag if possible.

When taking a temperature reading, hold the WM-3 by two fingers at the base, in the shade of an object or of your body. This instrument responds slowly to changes in temperature. You may need to allow at least a minute for it to adjust at each location. If the numbers continue to change, allow 2 more minutes; if they never fully stabilize (to within 2/5 of a degree or so), append the letter F (for fluctuating) to your best estimate of what the mean value is.

1: Field trips (40% of grade)

Two days are reserved in the schedule for class field trips. This may increase if other opportunities or suggestions present themselves. All students are required to attend at least one field trip. Please plan to attend two.

- **The Hayward Fault**

Tectonics form a prominent component of the physical geography of the Bay Area. On this field trip, we shall examine the surface characteristics of the Hayward Fault, which has been deemed by the USGS most likely to generate a significant earthquake in the near future. It also has an interesting history. From Wikipedia: The largest quake on the Hayward Fault in recorded history occurred in 1868, with an estimated magnitude of 7.0. It occurred on the southern segment of the fault, receiving its name (some decades later) from the nascent town of Hayward where it was determined the quake's epicenter was located. However, the 1868 quake caused much damage throughout the then sparsely settled Bay Area, including the city of San Francisco.[8][9] In fact, the 1868 event became known as the "Great San Francisco earthquake" until the larger tremor in 1906.

We will meet by 10:30 AM inside the HAHS Museum of History and Culture (open at 10) at 22380 Foothill Boulevard.
http://www.haywardareahistory.org/hahs-museum-of-history-culture/
Free parking is available behind the building in the municipal parking lot, which is accessible from Russell Way. The cost for the museum is $5. After touring the museum, we shall give ourselves a tour of the fault trace through downtown Hayward.

- **Fremont's Pacific Commons Linear Park**

The Pacific Commons is a new shopping district adjacent to a pre-existing auto mall and industrial park. Together these developments have dramatically changed the site's hydrological characteristics, increasing impermeability and altering the pattern of infiltration and surface flow into a wetland region adjacent to the southern portion of the San Francisco Bay.

We will examine and appreciate an example of ecological engineering, where stormwater runoff from Pacifi Commons region is channeled through a series of ponds, where sediment is deposited and the water is purified before entering into the bay. We will also examine the nexus of land uses (landfill, quarry, rail line, cattle, etc.) nearby.

From I-880 North, take the Auto Mall exit, and turn left. We will meet at 11 AM near the end of Auto Mall Parkway as indicated by the marker in the image below (this is the only available public parking near the path

If you want to program a GPS, the closest address is 44091 Nobel Dr., Fremont. Do not turn onto Nobel Dr., however; proceed a few more feet and park on the left side of Auto Mall Parkway near the entrance to the linear park.

If you arrive early, explore the land cover characteristics of the office park and of the Pacific Commons shopping area on your own first. Otherwise, do so later.

This is a hot spot for birding. Search the web for "Pacific Commons Linear Park" to check out what's there. Bring your binoculars. I will bring a Petersen's guide.

This is a pass/fail course. In order to get a passing grade, each student must have provided her or his share of the work involved in field observations, data entry, database design analysis, and/or presentation (this is 60% of the grade). Each student should also have attended at least one field trip, preferably two. This is 40% of the grade.

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See University Policy F13-1 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

University Policies

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU's policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arise. To learn important campus information, view University Policy S90–5 at http://www.sjsu.edu/senate/docs/S90-5.pdf and SJSU current semester's Policies and Procedures, at http://info.sjsu.edu/static/catalog/policies. In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not address the issue, it is recommended that the student contact the Department Chair as the next step.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at http://www.sjsu.edu/aars/policies/latedrops/policy/**.** Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the Advising Hub at http://www.sjsu.edu/advising/.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7, http://www.sjsu.edu/senate/docs/S12-7.pdf, requires students to obtain instructor's permission to record the course.

Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material. Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The University Academic Integrity Policy S07-2 at http://www.sjsu.edu/senate/docs/S07-2.pdf requires 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 Student Conduct and Ethical Development website is available at http://www.sjsu.edu/studentconduct/.

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 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at http://www.sjsu.edu/aec to establish a record of their disability.

Geog186 Spring 2016 Course Schedule

Please note that the course calendar is subject to change with fair notice, as announced in class and by email.

Week	Date	Topics, Assignments, Deadlines
1	1/29	Introduction; instrumentation; initial field observations.
2	2/5	Field observations (see instructions); project goals
3	2/12	Field observations, data entry, database design
4	2/19 *	Field observations, data entry, database design; discussion of Fremont field trip.
5	2/26	Field trip to Fremont (may be postponed due to weather)
6	3/4	Field observations, data entry, initial analysis; discussion of Hayward field trip.
7	3/11	Field trip to Hayward (may be postponed due to weather)
8	3/18 *	Field observations, data entry, initial analysis
9	3/25	Field observations, data entry, initial analysis
10	4/1	SPRING BREAK
11	4/8	Field observations, data entry, initial analysis
12	4/15	Supplementary field observations, data entry, analysis
13	4/22 *	Supplementary field observations, data entry, analysis
14	4/29	Analysis, presentation
15	5/6	Analysis, presentation
16	5/13	Analysis, presentation