USC Dornsife
Dana and David Dornsife
College of Letters, Arts and Sciences

SSCI 220L, Spatial Data Collection Using Drones

Syllabus

Units: 4

Term: Spring 2024
Lecture, Day — Time: Tue, Thu, 9:00 – 10:20 am
Lab, Day — Time: Mon, 8:00 – 9:50 am

Location:
Lecture: DMC 104
Lab: DMC 153

Instructor: Yi Qi, Ph.D
Office: AHF B55J
Office Hours: TBD
Contact Info: yi.qi@usc.edu, 213-821-1589

Library Help: Andy Rutkowski
Office: VKC 36B
Office Hours: Thu 10 am-12 pm
Contact Info: arutkows@usc.edu

IT Help: Myron Medalla
Office: AHF B56B
Office Hours: By appointment via email
Contact Info: spatial_support@usc.edu, 213-821-4415

Course Scope and Purpose

Geographic Information Systems (GIS) and imagery collected from unoccupied aerial systems (UASs) or drones present researchers an unparalleled opportunity to study the earth's built and natural systems and the human impact on these systems in very high detail. The recent advent of stable and maneuverable unoccupied aerial systems (e.g., quad and octocopters vs fixed-wing systems), formal regulations by the FAA (in the United States) and the dramatic reduction in production costs, has enabled the rapid adoption over the past five years of UAS by the consumer market. Under the supervision of faculty that are licensed FAA remote system pilots, students will develop the requisite knowledge and practical skills to conduct remote sensing operations via sourcing, analyzing, and producing GIS and simulation- based projects with UAS-derived data. As a recurring theme, several *Security & Safety for Human Populations* examples will be used throughout the course.

This course is a required course for the B.S. in Human Security and Geospatial Intelligence. It serves as an elective course for the B.S. in GeoDesign, the B.S. in Global GeoDesign, and the B.S. in Environmental Studies. Additionally, it serves as an elective course for minors in Human Security and Geospatial Intelligence or Spatial Studies.

All course materials will be organized through Blackboard. The main theoretical concepts will be provided through course notes and assigned readings. Hands-on practical exercises/projects will use various software products accessible over the Internet or the SSI Server. Assignments will give students an opportunity to internalize and apply the concepts and theory learned from readings. Some assignments require student interaction, which will benefit all students.

Learning Objectives

On completion of this course, students should be able to:

- Specify fitness-for-purpose criteria (i.e., use cases) and apply them to the evaluation of geospatial data for specific applications;
- Demonstrate an understanding of conceptual foundations of remote sensing, focused primarily on imagery data, with an additional focus on UAS-derived products;
- Describe the methods to collect and process UAS-derived imagery;
- Use GIS and modeling to process, exhibit, and analyze imagery datasets;

Students may vary in their competency levels on these abilities. You can expect to acquire these abilities only if you honor all course policies, attend classes regularly, complete all assigned work in good faith and on time, and meet all other course expectations of you as a student.

Prerequisite(s): None
Co-requisite(s): None
Recommended Preparation: None

Class Conduct

Harassment, sexual misconduct, interpersonal violence, and stalking are not tolerated by the university. All faculty and most staff are considered Responsible Employees by the university and must forward all information they receive about these types of situations to the Title IX Coordinator. The Title IX Coordinator is responsible for assisting students with supportive accommodations, including academic accommodations, as well as investigating these incidents if the reporting student wants an investigation. The Title IX office is also responsible for coordinating supportive measures for transgender and non-binary students such as faculty notifications, and more. If you need supportive accommodations you may contact the Title IX Coordinator directly (titleix@usc.edu or 213-821-8298) without sharing any personal information with me. If you would like to speak with a confidential counselor, Relationship and Sexual Violence Prevention Services (RSVP) provides 24/7 confidential support for students (213-740-9355 (WELL); press 0 after hours).

Diversity and Inclusion – It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. It is my intent to present materials and activities that are respectful to everyone, and you are also expected to respect of others regardless of their race, ethnicity, gender identity and expressions, cultural beliefs, religion, sexual orientation, national origin, age, abilities, ideas and perspectives, or socioeconomic status. Your suggestions are encouraged and appreciated. Feel free to let me know ways to improve the effectiveness of the course for you personally or for other students.

Course Structure

This is a four-credit course comprised of lectures (two per week) and project/data collection session (one per week). The lecture/learning sessions will discuss various aspects of spatial data collection approaches, remote sensing concepts, UAS platforms, UAS-based sensors, UAS data collection, and the hardware and software systems used to investigate these processes. The weekly project meetings or UAS data collections are designed to introduce the student to the tools of remote sensing inquiry and to provide practical experience in implementing these tools to explore various problems within the framework of the scientific method. The lecture and project sessions are designed to complement each other to provide the student with sound theoretical reasoning and the technical skills to investigate various physical attributes. The project assignments will be graded and returned. It is required that you register for both the lecture and one laboratory session for this course.

Please note that all course materials and correspondence will be posted on the course Blackboard website. As a registered student you will find this course available for you to access on the first day of classes.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. (Living our Unifying Values: The USC Student Handbook, page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposed other than individual or group study is prohibited. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which has been distributed to students or in any way has been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. (Living our Unifying Values: The USC Student Handbook, page 13).

Technological and Communication Requirements

ArcGIS and drone imagery processing software are provided online via the SSI Server; hence, you do not need to install it on your own computer. Instead, every student must have the following technology requirements:

- A computer with a fast Internet connection.
- An up-to-date web browser to access the Server

If a student does not have access to any of these, please speak with the instructor at the start of the semester. Also, see the USC ITS Student Toolkit here:
https://keepteaching.usc.edu/students/student-toolkit/

SSI Server and Tech Support – This course utilizes the SSI Server which is a virtual desktop giving access to many different professional software. If you are unable to connect to the server or experience any type of technical issues, send an email using your USC account to SSI Tech Support at spatial_support@usc.edu, making sure to copy (cc) me on the email.

Communications – All materials to be handed in will be submitted via Blackboard. It is each student's responsibility to stay informed about what is going on in our course. In addition to email about time-sensitive topics, any important announcements will be posted on the Announcement page in Blackboard. Be sure to check these each time you log onto Blackboard. I will send via email through Blackboard any notices that are time sensitive. Please be sure that you read as soon as possible all email sent from Blackboard or from me. Do not ignore course email until the day before assignments are due. Also double check to be sure that email sent from the USC blackboard account does not go into your junk mail!
While I am usually on-line all day and will probably respond to emails from students very

quickly, I will endeavor to respond to all email within 24 hours of receipt, aiming for no more than 72 hours delay. In the rare case when I expect to be off-line for more than 72 hours, I will post an announcement on the Blackboard site.

Required Readings and Supplementary Materials

The required textbooks for this course are:

- Brown, C. and C. Harder. 2017. *The ArcGIS Book – 2nd Edition*. Washington, DC: New America. Esri Press, Redlands, CA. ISBN: 9781589484870 (no cost; provided in Bb).
- Brown, C. and C. Harder. 2016. *The ArcGIS Imagery Book*. Washington, DC: New America. Esri Press, Redlands, CA. ISBN: 9781589484627 (no cost; provided in Bb).
- Canada Centre for Remote Sensing (CCRS). 2000. *Fundamentals of Remote Sensing* (no cost; provided in Bb).
- Jensen, John R, 2017. *Drone Aerial Photography and Videography: Data Collection and Image Interpretation*. Amazon Kindle store or Apple iBooks store. NOTE: The Amazon Kindle store version is recommended as it can be viewed on either the Microsoft Windows or the Apple operating systems.

Supplemental Readings – Some (not all) of the following journal articles and readings will be used in course as directed or posted to Blackboard. Additional readings may be added:

- Aber, James S., Marzolff, I, Ries, J.B., and Aber, S. 2019, Principles of Photogrammetry (Chapter 3). Small-Format Aerial Photography and UAS Imagery. Elsevier B.V. https://doi.org/10.1016/B978-0-12-812942-5.00003-3
- Candiago, S., Remondino, F., De Giglio, M., Dubbini, M., & Gattelli, M. 2015. Evaluating multispectral images and vegetation indices for precision farming applications from UAV images. *Remote Sensing*. 7(4): 4026-4047.
- Clark, R. 2020. *Geospatial Intelligence – Origins and Evolution (Selected Chapters).* Georgetown Washington, DC: University Press.
- Colomina, I., & Molina, P. 2014. Unmanned aerial systems for photogrammetry and remote sensing: A review. *ISPRS journal of photogrammetry and remote sensing*. 92: 79- 97, https://www.sciencedirect.com/science/article/pii/S0924271614000501.
- Colorado, J., Mondragon, I., Rodriguez, J., & Castiblanco, C. 2015. Geo-mapping and visual stitching to support landmine detection using a low-cost UAV. *International Journal of Advanced Robotic Systems*. 12(9), 125.
- Dall'Asta, E., G. Forlani, R. Roncella, M. Santise, F. Diotri, U. Morra di Cella, 2017. Unmanned Aerial Systems and DSM matching for rock glacier monitoring, ISPRS Journal of Photogrammetry and Remote Sensing, 127:102-114, http://dx.doi.org/10.1016/j.isprsjprs.2016.10.003.
- DeMario, A., P. Lopez, E. Plewka, R. Wix, H. Xia, E. Zamora, D. Gessler, A.P. Yalin, 2017. Water plume temperature measurements by an unmanned aerial system

(UAS). Sensors; 17(2):306, http://doi:10.3390/s17020306

- Eisenbeiss, H. 2004. A mini unmanned aerial vehicle (UAV): system overview and image acquisition. *International Archives of Photogrammetry. Remote Sensing and Spatial Information Sciences*. 36(5/W1): 1-7.
- Erenoglu, R.C., O. Akcay, O. Erenoglu, 2017. An UAS-assisted multi-sensor approach for 3D modeling and reconstruction of cultural heritage site, Journal of Cultural Heritage. 26:79-90, http://dx.doi.org/10.1016/j.culher.2017.02.007
- Gillan, J.K., K. Jason, A. Elaksher, M.C. Duniway, 2017. Fine-resolution repeat topographic surveying of dryland landscapes using UAS-based structure-from-motion photogrammetry, Remote Sensing, 9, 437; http://doi:10.3390/rs9050437
- Greenwood, F. 2015. How to make maps with drones. In *Drones and Aerial Observation: New Technology for Property Rights, Human Rights, and Global Development, A Primer*, edited by K. Kakaes. 35-47. Washington, DC: New America.
- Jones IV, P., L. G. Pearlstine, H. F. Percival, 2007. An assessment of small unmanned aerial vehicles for wildlife research, Wildlife Society Bulletin, 34(3): 750-758, http://www.jstor.org.pallas2.tcl.sc.edu/stable/3784704
- Kachhwaha, T. S. 1983. Spectral signatures obtained from Landsat digital data for forest vegetation and land-use mapping in India. *Photogrammetric Engineering and Remote Sensing*. 49(5): 685-689.
- Khorram S., Koch F.H., van der Wiele C.F., Nelson S.A.C. 2012. Remote Sensing. Springer Briefs in Space Development. Boston, MA: Springer.
- Mesas-Carrascosa, F.J., M. D. Notario García, J.M. Meroño de Larriva and A. García-Ferrer, 2016. An analysis of the influence of flight parameters in the generation of unmanned aerial vehicle (UAV) orthomosaicks to survey archaeological areas, Sensors, http://doi:10.3390/s16111838
- Mulero-Pázmány, M., S. Jenni-Eiermann, N. Strebel, T. Sattler, J.J. Negro, Z. Tablado, 2017, Unmanned aircraft systems as a new source of disturbance for wildlife: A systematic review. PLOS ONE, 12(6), e0178448. https://doi.org/10.1371/journal.pone.0178448
- Pajares, G., 2015. Overview and Current Status of Remote Sensing Applications Based on Unmanned Aerial Vehicles (UAVs), Photogrammetric Engineering and Remote Sensing. 81(4): 281-329.
- Remondino, F., 2003. From point cloud to surface: the modeling and visualization problem. International Archives of photogrammetry. *Remote Sensing and Spatial Information Sciences*. 34.
- Vas, E., A. Lescroe, O. Duriez, G. Boguszewski, D. Gremillet, 2015. Approaching birds with drones: first experiments and ethical guidelines, Biological Letters, 11(2): DOI: 10.1098/rsbl.2014.0754

- Whitehead, K., and C. H. Hugenholtz., 2014. Remote sensing of the environment with small unmanned aircraft systems (UASs), Part 1: A review of progress and challenges. *Journal of Unmanned Vehicle Systems.* 2: 69-85.
- Zhang, C., J.M. Kovacs, 2012. The application of small unmanned aerial systems for precision agriculture: a review, Precision Agriculture, 13(6): https://link.springer.com/article/10.1007/s11119-012-9274-5

Description and Assessment of Assignments

There are several different kinds of assignment with at least one due weekly. These are described in the Weekly Folders on Blackboard. Careful planning and a serious, consistent commitment will be required for a student to successfully navigate the various deliverables in this course throughout the semester. Due dates are shown in the course schedule below.

Project Assignments – 5 worth a total of points. For a portion of the classes, students will be doing project work based on GNSS data, UAS imagery data, or data collected from another source (such as satellite imagery). Students may talk with each other in class to complete these exercises & tutorials but will need to do the projects on their own and submit independent written work.

Midterm – 1 worth 15 points. There will be one midterm administered in class which will cover information presented this far as well as assigned readings.

Reading Responses – 5 worth a total of 20 points. During most weeks, each student will complete assigned readings and submit a report on Blackboard. The report includes what the student agrees/disagrees with, what critiques the student may have, or links to other relevant materials (websites, videos, etc.).

Class Interaction – Various worth a total of 5 points. Student participation and involvement is critical for the success of this course. Each student must actively participate in class discussions, projects, and field-based work. Your participation should:

- Demonstrate that you have read and understood the assigned texts and articles
- Help move the class conversation forward by offering your unique/relevant perspective
- Take an active role in field-based work.

Final Exam – 1 worth 20 points. There will be one final exam administered in class which will cover information presented throughout the course. The exam will be administered during exam week.

Grading Breakdown

Careful planning and a serious, consistent commitment will be required for you to successfully navigate the various deliverables in this and other SSI courses. The table below summarizes the SSCI 220L course assignments and their point distribution.

Assignments	Number	Points Each	Total Points
Project Assignments	5	8	40
Midterm	1	15	15
Reading Responses	5	4	20
Class Interaction (field work)	1	5	5
Final Exam	1	20	20
Totals	**13**		**100**

Grading Scale

Assignments in this and other SSCI courses, are graded on the letter grade scale where A is exemplary, B is very good, C is satisfactory, D is unsatisfactory, and F needs improvement. Final grades use the same letter grade scale with C being the minimum passing grade for credit at the graduate level. The grading scale follows:

A	> 93 points		B-	80-82 points		D+	67-69 points
A-	90-92 points		C+	77-79 points		D	63-66 points
B+	87-89 points		C	73-76 points		D-	60-62 points
B	83-86 points		C-	70-72 points		F	<60 points

Assignment Submission Policy

Unless otherwise noted, assignments must be submitted via Blackboard by the due dates specified in the Course Schedule below and on the assignment instructions.
Unless otherwise noted, all Reading Assignments and Tutorials are *due by 11:59 pm Pacific Time (PT) on the deadline*. Project components have different due dates as indicated on the Course Schedule below. Your attention to on-time assignment submission is essential if I am to meet my goal to return comments on your submitted assignments before the next one is due. Sometimes this is impossible, so I will post a notice on anticipated delays if needed.

Strict penalties apply for late assignments as follows:

- All assignments will be penalized 2 points up to FOUR days late. No points will be given for submissions more than FOUR days late. Note that all assignments worth 2 points will receive 0 points if submitted late.
- Additionally, no written work will be accepted for grading after 5 pm PT on the last day of classes.

Course Schedule: A Weekly Breakdown

	Topic	Assignments and Readings	Deliverables/Due Dates
Module 1: Foundation in Spatial Data			
Week 1 1/8	Intro to GIS and Spatial Data	Review Course Syllabus Read Brown (2016) Chap. 1 Read Brown (2017) Chap. 1 Read Jensen (2017) Chap. 1 Read CCRS (2000) ToC	
Week 2 1/15* *Monday, 1/15 is university holiday	Intro to Spatial Data Collection and Remote Sensing	Read Brown (2016) Chap. 2 Read Brown (2017) Chap. 2 Read CCRS (2000) Chap. 1	
Week 3 1/22	Defining Imagery and Intro to sUAS	Read Brown (2016) Chap. 3 Read Jensen (2017) Chap. 2	Reading Response 1
Week 4 1/29	GNSS Coordinates and Coordinate-Based Referencing	Read Clark (2020) Chaps. 4 and 7 Read Selected Supplemental Reading: *Is RTK the Future of Drone Mapping?*	Project 1
Module 2: UAS Flight Basics			
Week 5 2/5	Photogrammetry, UAS Flight Basics (Part I), and Flight Planning	Read Jensen (2017) Chap. 3 Read Selected Supplemental Reading: *Principles of Photogrammetry* Watch: *Introduction to Photogrammetry* video by Stachniss.	Reading Response 2
Week 6 2/12	UAS Flight Basics (Part II), Pilot Licensing, and Air Space Considerations	Read Jensen (2017) Chap. 7 Read Jansen (2017) Chap. 4, Sections 7-8	Project 2
Module 3: Perceiving Imagery			
Week 7 2/19* *Monday, 2/19 is university holiday	Perceiving the Imperceptible (Sensors - Part I)	Read Brown (2016) Chap. 4 Read Jensen (2017) Chap. 4, Sections 1-6 and Section 11	Reading Response 3

Week 8 2/26	Perceiving the Imperceptible (Sensors - Part II)	Read CCRS (2000) Chap 2 Scan CCRS (2000) Chap 3	Project 3
Week 9 4/3	Turning Imagery into Information (Part I)	Read Brown (2016) Chap. 5 Read Jensen (2017) Chap. 5, Sections 1- 5	Midterm
3/14 *3/11-3/17 is Spring Recess			
Week 10 3/18	Turning Imagery into Information (Part II)	Read Jenson (2017) Chap. 5, Sections 6-13	
Module 4: Future in Imagery World			
Week 11 3/25	Creating Mirror Worlds – 3D Imagery	Read Brown (2016) Chap. 6 Read Jensen (2017) Chap. 6, Sections 1-6 Read CCRS (2000) Chap 4, Sections 4.1-4.5	Reading Response 4
Week 12 4/1	Imagery in the 4th Dimension – Temporal Applications and Change Mapping	Read Brown (2016) Chap. 7 Read Jensen (2017) Chap. 6, Sections 7-15 Read CCRS (2000) Chap 4, Sections 4.6-4.9	Project 4
Week 13 4/8	The Big Data Challenge – Managing Imagery and Distribution	Read Brown (2016) Chap. 8 Read Jensen (2017) Chap 4, Sections 9-10 Read Selected Supplemental Reading(s) on Modeling & Simulation (VR Demo) (TBD)	Reading Response 5
Week 14 4/15	The Future Is Now – Converging Technologies (Modeling, Simulation, and Interaction)	Read Jensen (2017) Chap. 8 and 9 Read Selected Supplemental Reading(s) (TBD)	Project 5

Week 15 4/22 Friday, 4/26 is the last day of class	Summary of Imagery Applications and Products	Read Brown (2016) Chap. 9 Read Selected Supplemental Reading(s) (TBD)	
Final Exams 5/1-5/8	Final Exam		

Statement on Academic Conduct and Support Systems

Academic Integrity:
The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the student handbook or the Office of Academic Integrity's website, and university policies on Research and Scholarship Misconduct.

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of

appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

988 Suicide and Crisis Lifeline - 988 for both calls and text messages – 24/7 on call
The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL) – 24/7 on call
Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086
Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298
Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776
OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101
Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call
Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call
Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)
A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-2850 or otfp@med.usc.edu
Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.