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

SSCI 576, Remote Sensing Applications and Emerging Technologies

Syllabus

Units: 4

Term Day Time: Mon and Wed: 1:00-2:50 pm

Location: AHF 145A and DEN@Dornsife

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

Library Help: Andy Rutkowski
Office: LIPA B40-A
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IT Help: Myron Medalla
Office: AHF B56B
Contact Info: spatial_support@usc.edu, 213-740-4415

Course Scope and Purpose

This course is a required course for the Graduate Certificate in Remote Sensing for Earth Observation (RSEO) program, and an elective course for the Master's Degree in Geographic Information Science & Technology (GIST), Master's Degree in Human Security and Geospatial Intelligence, Graduate Certificate in Geospatial Leadership, and Graduate Certificate in Geospatial Intelligence.

This course serves those who want to understand the remote sensing as a cornerstone in geospatial world. This course is appropriate to those who have no prior knowledge in this domain and want to pick up the principles, as well as those who have relevance experiences and aspire to envision the value and future of modern imagery and sensing technology. The first part of the course focuses on the foundations of remote sensing. We will explain the key components in remote sensing systems, image characteristics, and image analytic processes.

The second part of the course will explore emerging trends in which remote sensing technology provides critical geospatial information that is relevant, accurate, timely, accessible, available in appropriate and cost-effective ways. Recent developments in sensors and artificial intelligence such as imaging radar, LiDAR, hyperspectral sensors, SmallSats, unoccupied autonomous systems (UASs) and internet of things (IoT) are increasing the wealth of information for Earth observations, human securities, geospatial intelligence and more diverse applications. Consequently, numerous new GIS applications that rely on advanced remotely sensed data sources have emerged at local, regional and global scales.

This a graduate level course, so you should expect this class to be both academically robust and intellectually challenging. As graduate students you are expected to engage with the information you are learning and to explore the heady cauldron of ideas, opinion, and analysis that describe our collective effort to thoroughly interrogate the subject at hand.

Learning Outcomes

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

- Explain the principles of remote sensing and the technical characteristics and constraints of various remote sensing technologies.
- Generate geographical information by processing digital remotely sensed data and critically evaluate its use for human security and/or environmental applications.
- Specify and critically evaluate some of the current trend, future opportunities and threats in remote sensing.

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
Concurrent Enrollment: None
Recommended Preparation: SSCI 581: *Concepts for Spatial Thinking*

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 nonbinary 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)

COVID-19 policy -- Students are expected to comply with all aspects of USC's COVID-19 policy including, but not limited to, vaccination, indoor mask mandate, and daily TrojanCheck. Failure to do so may result in removal from the class and referral to Student Judicial Affairs and Community Standards. Students are recommended to keep safe physical distancing, whenever possible, to prevent any possible transmission. Please contact your instructor if you have any safety concerns.

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

All course materials will be organized through D2L and will generally unfold on a weekly basis, with the week's material posted at the start of the week. The main theoretical concepts are introduced in class via lectures, discussions and after class via reading assignments.

Workload – This is a four credit, one semester graduate level course. Students should expect to spend 10-15 hours per week to complete the work in this class.

Technological and Communication Requirements

All software this course will use is provided online via the GIST 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.
- A functional webcam and a microphone for use whenever a presentation or meeting is scheduled.
- 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/

Desire2Learn (D2L) – This course will utilize the Desire2Learn (D2L) learning management system which allows students to access course content, upload assignments, participate in discussion forms, among other learning experiences. The D2L platform provides flexibility in the learning experience where students can participate in the course residentially or remotely, synchronously (meeting together at the same time) or asynchronously (accessing videos and course content outside of class).

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 assignments given and all materials to be handed in will be submitted via D2L. The instructor will also create and monitor discussion forums through which students can discuss issues and assignments as needed. Students should read all email sent from D2L or from course instructor(s) as soon as possible. Also, students who do not regularly use their USC email accounts should double-check to be sure that mail sent from both the D2L accounts and the instructor's account (noted above) to your USC account is forwarded to an address used regularly and does not go into junk mail. The instructor will endeavor to respond to all email within 24 hours of receipt, aiming for no more than 72 hours delay. In the rare case that an instructor is off-line for an extended periodof time, an announcement will be posted to the class D2L site. Due to the synchronous and asynchronous nature of this course, it is each student's responsibility to stay informed and connected with others in our

course. In addition to email, students are expectedto login to D2L regularly to check for announcements.

Discussion forums – On the D2L site, I will post a series of discussion threads relevant to various sections of the course. Discussions provide a key means for student-to-student discussion and collaboration that can replicate the face-to-face contact you may have experienced in traditional classrooms. Here students can provide support to each other while working on your assignments, sharing hints and helpful tips, as you would in a classroom laboratory. Please post your questions about assignments there, as you would ask them publicly in the classroom. I monitor the discussion threads and offer comments when necessary, but more importantly, consider the discussion board a keyway to connect with your classmates and share your discoveries.

Required Readings and Supplementary Materials

Textbooks – There are two required texts for this course. The first and second books by Esri Press can be purchased from online outlets such as Amazon, accessed via VitalSource.com or purchased from the USC Bookstore. The third book by Campbell is optional but recommended for those who have not taken SSCI 588 or a previous remote sensing course. It can be purchased from the USC Bookstore or online outlets such as Amazon.

- Green, K., Congalton, R.G., and Tukman, M. 2017. *Imagery and GIS – Best Practices for Extracting Information from Imagery.* Redlands, California, Esri Press.
- Keranen, K, and Kolvoord, R. 2017. *Making Spatial Decisions Using ArcGIS Pro: A Workbook.* Redlands, 1st edition. Redlands, California, Esri Press.
- Campbell, J.B. 2023. *Introduction to Remote Sensing,* 6th edition. New York, Guilford Press.

These textbooks will be supplemented with Course Notes and a mixture of readings from academic journals, professional reports and authoritative websites.

Supplemental Readings **–** The following book chapters and journal articles will be posted to D2L under Course Documents (additional articles may be added as the semester progresses):

- Belgiu, M. and Csillik, O., 2018. Sentinel-2 cropland mapping using pixel-based and object-based time-weighted dynamic time warping analysis. *Remote Sensing of Environment,* 204, 509-523.
- Blaschke, T., Hay, G.J., Kelly, M., Lang, S., Hofmann, P., Addink, E., … Tiede, D., 2014. Geographic Object-Based Image Analysis: Towards a new paradigm. *ISPRS Journal of Photogrammetry and Remote Sensing,* 87, 180-191.
- Benkelman, C., 2015. Ingesting, Managing, and Using UAV (Drone) Imagery in the

ArcGIS Platform, Version 2. Esri draft document.

- Boyd, D.S. and Danson, F.M., 2005. Satellite remote sensing of forest resources: Three decades of research development. *Progress in Physical Geography* 29: 1-26.
- Burnett, C. and Blaschke, T., 2003. A multi-scale segmentation/object relationship modeling methodology for landscape analysis. *Ecological Modelling* 168: 233-249.
- Carter, J., Schmid, K., Waters, K., Betzhold, L., Hadley, B., Mataosky, R. and Halleran, J. 2012. Lidar 101: An Introduction to Lidar Technology, Data, and Applications. National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, Charleston, South Carolina. *Charleston, SC*.
- Clark, R.N. 1999. Spectroscopy of rocks and minerals, and principles of spectroscopy. *Manual of remote sensing*, *3*(3-58), pp.2-2.
- Claverie, M., Ju, J., Masek, J. G., Dungan, J. L., Vermote, E. F., Roger, J.-C., Skakun, S. V., and Justice, C., 2018. The harmonized Landsat and Sentinel-2 surface reflectance data set. *Remote Sensing of Environment,* 219, 145-161.
- Colomina, I. and Molina, P., 2014. Unmanned aerial systems for photogrammetry and remote sensing: A review. *ISPRS Journal of photogrammetry and remote sensing*, *92*, pp.79-97.
- Deilami, K., Kamruzzaman, Md., and Liu, Y., 2018. Urban heat island effect: A systematic review of spatio-temporal factors, data, methods, and mitigation measures. *International Journal of Applied Earth Observation and Geoinformation,* 67, 30-42.
- Frantz, D., Haß, E., Uhl, A., Stoffels, J., and Hill, J., 2018. Improvement of the Fmask algorithm for Sentinel-2 images: Separating clouds from bright surfaces based on parallax effects. *Remote Sensing of Environment,* 215, 471-481.
- Gao, F. and Zhang, X., 2021. Mapping Crop Phenology in Near Real-Time Using Satellite Remote Sensing: Challenges and Opportunities. *Journal of Remote Sensing*, *2021*.
- Gilliespie, T.W., Chu, J., Frankenberg, E., and Thomas, D., 2007. Assessment and prediction of natural hazards from satellite imagery. *Progress in Physical Geography* 31: 459470.
- Hansen, Matthew C., and Thomas R. Loveland., 2012. A review of large area monitoring of land cover change using Landsat data. *Remote sensing of Environment* 122: 66-74.
- Huang, Huabing, Yanlei Chen, Nicholas Clinton, Jie Wang, Xiaoyi Wang, Caixia Liu, Peng Gong et al., 2017. Mapping major land cover dynamics in Beijing using all

Landsat images in Google Earth Engine. *Remote Sensing of Environment* 202: 166-176.

- Kakaes, K.A., Greenwood, F., Lippincott, M., Dosemagen, S., Meier, P. and Wich, S., 2015. Drones and aerial observation: new technologies for property rights, human rights, and global development. A primer. *New America*, pp.6-103.
- Kang, J., Körner, M., Wang, Y.-Y., Taubenböck, H., and Zhu, X.X., 2018. Building instance classification using street view images. *ISPRS Journal of Photogrammetry and Remote Sensing,* 145(Part A), 44-59.
- Kanjir, U., Greidanus, H., and Oštirca, K., 2018. Vessel detection and classification from spaceborne optical images: A literature survey. *Remote Sensing of Environment,* 207, 1- 26.
- Kokaly, R.F., Clark, R.N., Swayze, G.A., Livo, K.E., Hoefen, T.M., Pearson, N.C., Wise, R.A., Benzel, W.M., Lowers, H.A., Driscoll, R.L., and Klein, A.J., 2017. USGS Spectral Library Version 7: U.S. Geological Survey Data Series 1035, 61 p., https://doi.org/10.3133/ds1035.
- Kross, A., McNairn, H., Lapen, D., Sunohara, M., and Champagne, C., 2015. Assessment of RapidEye vegetation indices for estimation of leaf area index and biomass in corn and soybean crops. *International Journal of Applied Earth Observation and Geoinformation,* 34, 235-248.
- Kulbacki, M., Segen, J., Knieć, W., Klempous, R., Kluwak, K., Nikodem, J., Kulbacka, J. and Serester, A., 2018. Survey of drones for agriculture automation from planting to harvest.

  In *2018 IEEE 22nd International Conference on Intelligent Engineering Systems (INES)* (pp. 000353-000358). IEEE.
- Lewis, A., Oliver, S., Lymburner, L., Evans, B., Wyborn, L., Mueller, N. … Wang, L.-W., 2017. The Australian Geoscience Data Cube: Foundations and lessons learned. *Remote Sensing of Environment,* 202, 276-292.
- National Academies of Sciences, Engineering, and Medicine, 2019. *Thriving on our changing planet: A decadal strategy for Earth observation from space*. National Academies Press.
- Mishra, S., 2017. Unsupervised learning and data clustering. *URL: https://towardsdatascience. com/unsupervised-learning-and-data- clusteringeeecb78b422a*.
- Nguyen, Uyen NT, Lien TH Pham, and Thanh Duc Dang, 2019. "An automatic water detection approach using Landsat 8 OLI and Google Earth Engine cloud computing to map lakes and reservoirs in New Zealand." *Environmental monitoring and assessment* 191, no. 4: 1-12.
- Planet, 2018. Gaining energy insights from satellite imagery. URL:

https://info.planet.com/ebook-data-driven-energy-insights-from-satellite-imagery/

- Rashed, T., Weeks, J.R., and Gadalla, M.S., 2001. Revealing the anatomy of cities through spectral mixture analysis of multispectral satellite imagery: A case study of the Greater Cairo region, Egypt. *Geocarto International* 16: 5-16.
- Reuter, R., 2012. SEOS-Earsel's project on science education through earth observation for high schools SEOS. *Ambiência*, *8*(4), pp.583-590.
- Rochon, Gilbert L., Joseph E. Quansah, Souleymane Fall, Bereket Araya, Larry L. Biehl, Thierno Thiam, Sohaib Ghani, Lova Rakotomalala, Hildred S. Rochon, Angel Torres Valcarcel, Bertin Hilaire Mbongo, Jinha Jung, Darion Grant, Wonkook Kim, Abdur Rahman M. Maud, and Chetan Maringanti., 2010. Remote Sensing, Public Health & Disaster Mitigation. *Geospatial Technologies in Environmental Management*, Geotechnologies and the Environment 3: 187-209.
- Sharifi, Ali., 1999. "Remote sensing and decision support systems." In *Spatial Statistics for Remote Sensing*, pp. 243-260. Springer, Dordrecht.
- Wang, R., Peethambaran, J., and Chen, D., 2018. LiDAR point clouds to 3-D urban models: A review. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing,* 11(2), 606-627.

Description and Assessment of Assignments

Weekly Assignments

There are several different kinds of assignments with at least one due weekly. These are described in the Weekly Folders on D2L. Due dates are shown in the summary that follows.

Resume Assignment – 1 worth total of 2 points. We require all current students to post and maintain a public resume, short biography and recent photo on our shared SSI Student D2L site. Please prepare your resume in the SSI template which will be provided to you. Unless you opt out, your resume will be included in the Spatial Sciences Institute Graduate Programs Resume Book. This resume book is compiled annually and, along with our web presence, is used to promote our programs, and more importantly, your skills, experience and professional aspirations.

R*eading Assignments - 7 worth total of 28 points* – Each student is required to complete all reading assignments for this class. The reading assignments will focus on the theory portion of the course as presented in the weekly readings. The objective of the reading is to help you evaluate and integrate the information you have acquired from the course readings. Some of these will involve discussions and collaborative work and some will be individual efforts.

Exercises - 10 worth total of 40 points – These will be scheduled throughout the semester and will require you to work through various individual exercises during the weeks they are

assigned. To demonstrate that you have completed all parts of the exercises, you will have specific deliverables which you will turn in as a digital output or brief text response.

Final Project

The final project will provide you the opportunity to integrate learning from various aspects of the course through the practice of a more in-depth assignment. The final project will require independent thoughts and synthesis. You will choose one of the two options to craft a written document: 1) report a case study where you design and complete a full chain of analysis using remotely sensed data; 2) conduct a literature review on one topic of your interests. More detailed instruction on the final project will be discussed in the class.

Final Report - 1 worth 20 points – The final report is a professional writing of your finished research project or literature review.

Final Presentation - 1 worth 5 points – You will present your final project in a 10-min oral presentation via a PowerPoint in Zoom in the week preceding the final exam.

Grading Breakdown

Careful planning and a serious, consistent commitment will be required for you to successfully navigate the various deliverables in this course. The table below summarizes the SSCI 576 course assignments and their point distribution. There are 5 points designated to gauge your levels of engagement in class discussion with the professor and classmates, including but not limited to in-class discussion, D2L discussion forum, meetings with professors, and so forth.

Assignments	Number	Points Each	Total Points
Exercises	10	4	40
Reading Assignments	7	4	28
Resume Assignment	1	2	2
Final Report	1	20	20
Final Presentation	1	5	5
Class Discussion	1	5	5
Totals	**21**	**-**	**100**

Assignment Submission Policy

Unless otherwise noted, all assignments must be submitted via D2L *by 11:59 pm Pacific Time (PT) on due dates specified in* 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.

Any exceptions to these turn-in assignments are only made by me in coordination with individual students. An example of an exception would be a student's illness or injury that reasonably prohibits course involvement/participation.

Schedule

Date	Topic	Readings and Assignments	Deliverables and Due dates
Module 1: Principles of Remote Sensing			
Week 1 8/21	**Discovering Imagery, Part I:** Introduction to Imagery and Thinking About the Possibilities.	Green 1, 2; Reuter (2012) (optional); Campbell 1, 2 (optional)	Resume Assignment
Week 2 8/28	**Discovering Imagery, Part II:** Imagery Fundamentals and Choosing and Accessing the Right Imagery	Green 3, 4	Reading Assignment 1 Exercise 1
Week 3 9/5 *Monday, 9/4 is university holiday (Labor Day)	**Using Imagery:** Working with Imagery and Imagery Processing	Green 5, 6	Exercise 2
Module 2: Data to Decisions			
Week 4 9/11	**Extracting Information from Imagery, Part I:** Importance of the Classification Scheme; Linking Variation in the Imagery to Variation on the Ground; Unsupervised Classification	Green 7, 9, 10; Mishra (2017) (optional)	Reading Assignment 2 Exercise 3

Week 5 9/18	**Extracting Information from Imagery, Part II:** Supervised Classification; Accuracy Assessment;	Green 12; Campbell 14 (optional)	Exercise 4 Coding Exercise (optional)
Week 6 9/25	**Extracting Information from Imagery, Part III:** Object-Based Classification; Change Detection	Green 11	Reading Assignment 3 Exercise 5
Module 3: Multi-modal Data			
Week 7 10/2	**LIDAR:** Processing LIDAR Image Data; Digital Elevation Models; Slope and Aspect	Green 8; Carter et. al (2012); Campbell 8 (optional)	Exercise 6
Week 8 10/9 *10/12-10/13 is university holiday (Fall Recess)	**Point Clouds**	Retuer (2012); Campbell 15	Reading Assignment 4 Exercise 7
Week 9 10/16	**Thermal and SAR** **Hyperspectral and Advanced LIDAR:** Unmanned Aerial Systems (drones); 3D Object Classification; Spectral Libraries;	Colomina and Molina (2014); Kakaes et. al (2015); Benkelman (2015)	Exercise 8
Week 10 10/23	**Spatio-Temporal Data:** High-Cadence Earth Observatories (SmallSats); Time-Series and On-the-Fly Analysis	Reuter et. al (2012); Pasquarella et. al (2016);	Exercise 9 Reading Assignment 5
Module 4: Emerging Applications in Remote Sensing			
Week 11 10/30	**Applications – Part I:** Plant Sciences; Ecological Forecasting; Agriculture and Food Security	Kulbacki et. al (2018); Campbell 17 (optional)	Report 1
Week 12 11/6 *Friday, 11/10 is university holiday (Veterans Day)	**Applications – Part II:** Earth Sciences; Energy	Clark (1999); Campbell 18; Planet (2018)	Reading Assignment 6
Week 13 11/13	**Applications – Part III and IV:** Hydrospheric Sciences; Land Use and Land Cover; Google Earth Engine and Jupyter Notebook	Hansen and Loveland (2011); Huang et. al (2017); Nguyen et. al (2019)	Coding Exercise (optional)

Week 14 11/20 *11/22-11/24 is a university holiday (Thanksgiving)	**Applications – Part V:** Global Remote Sensing; Humanitarian	Li (2015); National Academy of Sciences (2019)	Reading Assignment 7
Week 15 11/27 Friday, 12/1 is the last day of class, 12/2-12/5 study days	**Applications – Part VI:** Decision Support Systems; Remote Sensing enabled Dashboards	Sharifi (1999); Gao and Zhang (2021)	Term Project StoryMap and Presentation
Final Exams 12/6-12/13	**No class**		

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.

Resources for Online Students

The Course D2L page and the SSI Student Hub on D2L have many resources available for distance students enrolled in our graduate programs. In addition, all registered students can access electronic library resources through the link https://libraries.usc.edu/. Also, the USC Libraries have many important resources available for distance students through the link: https://libraries.usc.edu/faculty-students/distance-learners. These include instructional videos, remote access to university resources, and other key contact information for distance students.