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

SSCI 680, Advanced Spatial Computing

Syllabus

Units: 4

Term Day Time: Spring 2024, F from 2:00 - 4:50 pm PT

Location: Taper Hall (THH) Room 221

Instructor: Jennifer N Swift, Ph.D. GISP
Office: AHF B57D
Regular Office Hours: W and TH 12pm-1pm PT. Also available most days and times by appointment via email.
Contact Info: jswift@usc.edu, 213-740-5841 (office), see contact page on Blackboard for Zoom Room

Contact Info: jswift@usc.edu, 213-740-5841 (office), see contact page on Blackboard for Zoom Room

Library Help: Andy Rutkowski
Office: LIPA B40-A
Office Hours: Thu 10:00 am – 12:00 pm or by appointment.
Contact Info: arutkows@usc.edu), see contact page on D2L for Zoom Room

IT Help: Myron Medalla
Office: AHF B56B
Office: By appointment via email
Contact Info: spatial_support@usc.edu, 213-740-2775

Course Scope and Purpose

This class will cover the theoretical foundations, methods, techniques, and software systems for spatial computing. This includes the latest research on topics that are central to spatial-enabled computing technologies and systems, including the geospatial semantic web, geospatial linked data, spatial data mining, geocoding, document linking, location-based services, volunteered geographic information, geospatial feature extraction, geospatial layer registration and alignment, and geospatial mashups. This class will also cover the use of various types of spatial data, including satellite and aerial imagery, raster (scanned) maps, vector datasets, news articles, web pages, linked data, and streaming data. Students will also gain a deep understanding and hands-on experience in the software for spatial computing, including geographic information systems, online GIS (e.g., ArcGIS Online, Bing Maps, Google Earth), semantic web tools, and spatial databases through a combination of homework and projects. Students will learn about the wide variety of geospatial data and services available, including how to find relevant data and transform it as needed so that it can be used for solving specific problems. This course is an elective for the Population, Health, and Place Ph.D. degree, and a required course in the Graduate Certificate in Spatial Analytics Program for doctoral students.

Learning Outcomes

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

- Describe the theoretical foundations of geospatial data and its various representations
- Select and use the appropriate spatial computing technologies and systems to solve any of a variety of real-world problems
- Build integrated applications that combine geographic data and applications for processing that data
- Understand, create, and apply semantic descriptions of geographic data which can then be used for searching, integrating, and sharing geographic knowledge
- Discuss the relevant spatial computing systems and techniques for working with geospatial data
- Apply relevant spatial computing techniques to solve spatial problems
- Critically evaluate spatial computing software and systems and determine whether they have been applied in appropriate ways

Prerequisite(s): None
Co-Requisite(s): None
Concurrent Enrollment: None
Recommended Preparation: Enrollment in a USC PhD Program

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)

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

The course will be taught using a lecture format where the instructor will present the core topics, and the students will actively participate in seminar discussions and give presentations on some of the subtopics. There are weekly in-class activities to ensure that students keep up with the material and readings. In the first half of the course, there are also weekly homework assignments to give students first-hand experience with the wide variety of software and systems that can be used for spatial computing. In the second half of the course, students will form teams and propose and conduct a class project that will give them more depth in one or more course topics of interest. The class will encourage student participation with ample discussion time for reviewing readings, homework, in-class activities, and other course materials.

This is a four-credit, one-semester course. Students should expect to spend 10-15 hours per week completing the work in this course.

Technological and Communication Requirements

The mapping software and geospatial data required for course assignments will be accessed using computing resources provided by the Spatial Sciences Institute. In addition, every student must have the following technology requirements:

- A computer with a fast Internet connection
- An up-to-date web browser to access the SSI 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 GIST 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 GIST 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 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 regularly online and will probably respond to emails from students 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 weekly readings will be accessed via the USC Library's electronic collections and / or provided by the instructor via Blackboard.

1. Clarke K C (2011) *Getting Started with Geographic Information Systems* (Fifth Edition). Upper Saddle Creek, NJ: Prentice Hall (Chapters 2 and 3)
2. VoPham T, Hart J E, Laden F, Chiang Y-Y (2018). Emerging Trends in Geospatial Artificial Intelligence (geoAI): Potential Applications for Environmental Epidemiology. *Environmental Health,* 17(1):40. doi: 10.1186/s12940-018-0386-x
3. Clemmer G (2013) *The GIS 20 Essential Skills.* Redlands, CA, Esri Press

4. Briggs D J, Collins S, Elliott P, Fischer P, Kingham S, Lebret E, … Van Der Veen A (1997). Mapping urban air pollution using GIS: a regression-based approach. *International Journal of Geographical Information Science*, *11*(7): 699–718
5. Hoek G, Beelen R, de Hoogh K, Vienneau D, Gulliver J, Fischer P, and Briggs D (2008). A review of land-use regression models to assess spatial variation of outdoor air pollution. *Atmospheric Environment*, *42*(33): 7561–7578
6. Jiang W, Wang Y, Tsou M-H, and Fu X (2015). Using social media to detect outdoor air pollution and monitor air quality index (AQI): A geo-targeted spatiotemporal analysis framework with Sina weibo (Chinese Twitter). *PloS One*, *10*(10), e0141185
7. Güting R H (1994) An introduction to spatial database systems. *VLDB Journal* 3: 357-399
8. Boundless (2020) Introduction to PostGIS. WWW document. Retrieved from https://postgis.net/workshops/postgis-intro/
9. Microsoft (2018) Bing Maps Blogs. WWW document. Retrieved from https://blogs.bing.com/maps/2018-06/microsoft-releases-125-million-building-footprints-in-the-us-as-open-data
10. Google (2020) Google Earth Tutorials. WWW document. Retrieved from http://www.google.com/earth/outreach/tutorials/all.html
11. Facebook (2020) Map with AI. WWW document. Retrieved from https://mapwith.ai/#14/2.24856/32.87386
12. Goodchild M F and Li L (2012) Assuring the quality of volunteered geographic information. *Spatial Statistics* 1: 110-120
13. Lin Y, Pan F, Chiang Y-Y, Stripelis D, Ambite J L, Eckel S P, and Habre R (2017) Mining public datasets for modeling intra-city $PM_{2.5}$ concentrations at a fine spatial resolution.SIGSPATIAL 2017i, Redondo Beach, CA USA. Retrieved from https://dl.acm.org/doi/pdf/10.1145/3139958.3140013
14. Arsanjani J, Helbich M, Bakillah M, Hagenauer J, and Zipf A (2013) Toward mapping land- use patterns from volunteered geographic information. *International Journal of Geographical Information Science*, *27*(12): 2264–2278
15. WorldClim (2017) WWW document. Retrieved from https://www.worldclim.org/
16. Zhang Y, Ma Q, Chiang Y-Y, Knoblock C, Zhang X, Yang P, ... & Hu X (2019). Extracting geographic features from the Internet: A geographic information mining framework. *Knowledge-Based Systems*, 174(15): 57–72. doi: 10.1016/j.knosys.2019.02.031
17. Swartz A (2002) The Semantic Web in Breadth. WWW document. Retrieved from http://logicerror.com/semanticWeb-long
18. Palmer S B (2001) The Semantic Web: An Introduction. WWW document. Retrieved from http://infomesh.net/2001/swintro/
19. Fonseca F T (2008) Geospatial semantic web. In Shekhar S and Xiong H (eds) *Encyclopedia of GIS.* Berlin, Germany: Springer: 388-391

20. Kuhn W (2005) Geospatial semantics: Why, of what, and how? In Spaccapietra S and Zimányi E (eds) *Journal on Data Semantics III.* Lecture Notes in Computer Science Vol. 3534: 1-24. Berlin, Germany: Springer

21. Koubarakis M, Kyzirakos K, Karpathiotakis M, Nikolaou Ch, Sioutis M, Garbis G, and Bereta K (2012) Introduction in stRDF and stSPARQL. WWW document. Retrieved from https://strabon.di.uoa.gr/files/stSPARQL_tutorial.pdf

22. Janowicz K, Scheider S, Pehle T, and Hart G (2012) Geospatial semantics and linked spatiotemporal data: Past, present, and future. Semantic Web 3: 321-332

23. Lieberman M D, Samet H, Sankaranarayanan J, and Sperling J (2007) STEWARD: Architecture of a spatio-textual search engine. In *Proceedings of the Fifteenth ACM International Symposium on Advances in Geographic Information Systems*, Seattle, Washington: 186-193

24. Amitay E, Har'El N, Sivan R, and Soffer A (2004) Web-a-where: Geotagging Web content. In *Proceedings of Twenty-Seventh International Conference of the ACM Special Interest Group on Information Retrieval,* Sheffield, United Kingdom: 273-280

25. Han B, Cook P, Baldwin T (2014) Text-based Twitter user geolocation prediction. Journal of Artificial Intelligence Research. 49:451-500

26. Monteiro B R, Davis C A, Jr, and Fonseca F (2016) A survey on the geographic scope of textual documents. *Computers & Geosciences*, *96*: 23–34

27. Chiang Y-Y (2015) Querying historical maps as a unified, structured, and linked spatiotemporal source. In *Proceedings of the 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Seattle, WA, USA: 16:1–16:4. Retrieved from https://dl.acm.org/doi/pdf/10.1145/2820783.2820887

28. Kerle N and de Leeuw J (2009) Reviving legacy population maps with object-oriented image processing techniques. *IEEE Transactions on Geoscience and Remote Sensing* 47: 2392-2402

29. Uhl J H, Leyk S, Chiang Y-Y, Duan W, and Knoblock C A (2017) Extracting Human Settlement Footprint from Historical Topographic Map Series Using Context-Based Machine Learning. In *Proceedings of the IAPR 8th International Conference on Pattern Recognition Systems*, pp. 15 – 21, Madrid, Spain (best paper award)

30. Chen C-C, Knoblock C A, and Shahabi C (2006) Automatically conflating road vector data with orthoimagery. *GeoInformatica* 10: 495-530

31. Shbita B, Knoblock C A, Duan W, Chiang Y-Y, Uhl J H and Leyk S (2020) Building Linked Spatio-Temporal Data from Vectorized Historical Maps. In *Proceedings of the Extended Semantic Web Conference (ESWC)*, Heraklion, Greece

32. Goldberg D W, Knoblock C A, and Wilson J P (2007) From text to geographic coordinates: The current state of geocoding. *Journal of the Urban and Regional Information Systems Association* 19(1): 33-46

33. Andresen M A, Malleson N, Steenbeek W, Townsley M, Vandeviver C (2020) Minimum geocoding match rates: an international study of the impact of data and areal unit sizes. International Journal of Geographical Information Science. 13:1-7

34. Shekhar S, Jiang Z, Ali R Y, Eftelioglu E, Tang X, Gunturi V M V, and Zhou X (2015) Spatiotemporal Data Mining: A Computational Perspective. *ISPRS International Journal of Geo-Information*, *4*(4): 2306–2338

Description and Assessment of Assignments

There are several different kinds of assignments, with at least one due weekly. Students must prepare and contribute to in-class discussions, participate in a team project, complete weekly in-class activities, and turn in homework assignments. These are described in the Weekly Folders on Blackboard. Due dates are shown in the summary that follows.

Student-Led Discussions (10%) – A class discussion grade for the semester will be assigned based upon how actively students engage in the course. Students will be required to read all material outlined for each week of the course and be prepared to lead and participate in group discussions about the readings in class. Failure to attend, or not be adequately prepared to discuss the readings will lead to the assignment of a lower grade for that week.

Class Presentation (20%) – Students will conduct a seminar on a topic determined in consultation with the instructor. Students will be expected to become an expert on that topic and present a short lecture of 30-45 minutes on the topic.

Computing Assignments (20%) – Students will complete five spatial computing homework assignments during the first half of the course.

In-Class Activities (20%) – There will be weekly in-class activities based on the lectures and readings from the previous week. There is no final exam, so this is an assessment of how well students have learned the material.

Team Project (30%) – In the second half of the course, students will work in teams on projects determined in consultation with the instructor. The team will propose their own projects based on the topics covered in class. The grades for the final project will be spread across three components as follows: (1) the proposal describing the proposed project, including software to be implemented and any data to be acquired (10%), (2) a final report (10%), and (3) both an in-class and a recorded demo presentation video of your final project (10%).

For anything that requires a presentation in this class as well as for the team project (the proposal, final report, and presentation), students need to address the following questions: “What is the project trying to do?”, “How is it done today, and what are the limits of current practice?”, “What is your approach, and what is new in your approach?”, “Who cares? If you succeed, what difference will it make?”, “How do you know if your approach is successful?”, and “What are the future extensions?” This is based on the modified version of the famous “Heilmeier Catechism”: https://www.darpa.mil/work-with-us/heilmeier-catechism.

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 graduate courses. The table below summarizes the SSCI 680 course assignments and their point distribution:

Assessment	Number	Points Each	Total Points
Class Participation and Presentations, In-class activities, and Assignments			
Student-Led Discussions	--	--	10
In-class activities	10	2	20
Computing Assignments	5	4	20
Class Presentation	1	20	20
Project Components			
Proposal	1	10	10
Final Report	1	10	10
Final Presentation/Video	1	10	10
TOTALS	**19**		**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

Assignments will be submitted for grading via Blackboard using the due dates specified in the Course Schedule below.

Additional Policies

Students are expected to attend and participate in every class session and to complete and upload all assignments before the deadlines detailed in the Course Schedule.

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.
- Additionally, no written work will be accepted for grading after 5 pm PT on the last day of classes.

Schedule

	Topic	Readings and Assignments	Deliverables/Due Dates
Weeks 1 – 2: Fundamentals of Spatial Computing			
Week 1 1/12	**Introduction to Spatial Computing – Part I** <u>Spatial Data Basics</u> Brief introductions with a discussion of class goals, projects, technologies, plans, and expectations Introduction to basics of spatial data, including representations of spatial data, structured spatial data, unstructured spatial data, streaming data, coordinate systems, datum, projections, etc.	Clarke (2011); VoPham et al. (2018)	- Group discussion based on reading
Week 2 1/19* *Monday, 1/15 is university holiday	**Introduction to Spatial Computing – Part II** <u>Geographic Information Systems and Beyond</u> Introduction to real-world spatial computing problems and challenges in using traditional GI systems (using the traditional air quality modeling work as an example) Hands-on use of ArcGIS and QGIS to develop familiarity with the limitations and required capabilities in tackling spatial computing problems	Clemmer (2013) (optional); Briggs et al. (1997); Hoek et al. (2008); Jiang et al. (2015)	- In-class activity

	Topic	Readings and Assignments	Deliverables/Due Dates
Weeks 3 – 5: Module 2 | Advanced Concepts of Spatial Data			
Week 3 1/26	**Structured Spatial Data** Spatial Databases and Beyond Introduction to capabilities of spatial systems that handle large spatial datasets Hands-on use of the Postgres PostGIS spatial database	Güting (1994); Boundless (2017)	- In-class activity - Submit assignment 1 on the Blackboard no later than 11:59 p.m. on Fri., 1/26
Week 4 2/2	**Online Spatial Data – Part I** Online GIS Discussion and hands-on training with online GIS software and datasets, with a focus on Google Maps, Bing Maps, and Google Earth Introduction to Cloud Computing	Microsoft (2020); Google (2020); Facebook (2020); Goodchild & Li (2012)	- In-class activity
Week 5 2/9	**Online Spatial Data – Part II** Publicly Available Online Geospatial Datasets Introduction to recent developments and applications of publicly available geospatial datasets online, including volunteered geographic information (VGI), widely-used open geospatial sources, techniques for crowd-sourcing data Introduction to attempts to evaluate the quality of VGI data	Lin et al. (2017); Arsanjani et al. (2013); WorldClim (2017); Zhang et al. (2019)	- In-class activity - Submit assignment 2 on the Blackboard no later than 11:59 p.m. on Fri., 2/9

	Topic	Readings and Assignments	Deliverables/Due Dates
Weeks 6 – 9: Module 3 | Fundamentals of the Semantic Web & Linked Data			
Week 6 2/16	**Machine-Understandable Spatial Data – Part I** <u>Geospatial Semantic Web</u> Introduction to methods and applications for representing and reasoning about geospatial data using the infrastructure of the Semantic Web Hands-on use of tools for creating and using geospatial semantic data	Swartz (2002); Palmer (2001); Fonseca (2008)	- In-class activity - Submit assignment 3 on the Blackboard no later than 11:59 p.m. on Fri., 2/16
Week 7 2/23* *Monday, 2/19 is university holiday	**Machine-Understandable Spatial Data – Part II** <u>Geospatial Linked Data</u> Introduction to research and techniques for creating and using geospatial linked data	Kuhn (2005); Koubarakis et al. (2012); Janowicz et al. (2012)	- Submit assignment 4 on the Blackboard no later than 11:59 p.m. on Fri., 2/23 - Submit teams and propose team presentation topics on the Blackboard no later than 11:59 p.m. on Fri., 2/23
Week 8 3/1	**Unstructured Spatial Data** <u>Linking Text to Location</u> Introduction to methods and applications for linking textual information to geographic locations	Lieberman et al. (2007); Amitay et al. (2004); Han et al. (2014); Monteiro et al. (2016)	- In-class activity - Student presentations on the initial final project ideas - Submit the refined final project ideas and plan as a Final Project Proposal on the Blackboard no later than 11:59 p.m. on Fri., 3/1
Week 9 3/8	**Discussion of Project Proposal** Discussion and refinement of final project proposals and plan		- In-class activity - Student presentations on the refined final project ideas and plan

	Topic	Readings and Assignments	Deliverables/Due Dates
Spring Recess 3/11-3/17			
Weeks 10 – 12: Module 4 | Advanced Spatial Computing			
Week 10 3/22	**Spatial Data Conflation – Part I** <u>Digital Map Processing</u> Introduction to methods for the extraction and recognition of geographic features from scanned raster maps	Chiang (2015); Kerle & de Leeuw (2009); Uhl et al. (2017)	- In-class activity - Submit assignment 5 on the Blackboard no later than 11:59 p.m. on Fri., 3/22
Week 11 3/29	**Spatial Data Conflation – Part II** <u>Registering and Aligning Geospatial Layers</u> Discussion of techniques for automatically aligning various geospatial layers, including both vector and raster layers	Chen et al. (2006); Shiba et al. (2020)	- In-class activity - Class Presentations
Week 12 4/5	**Unstructured Spatial Data** <u>Geocoding</u> Introduction to new methods and applications for linking addresses to locations Comparing geocoding applications and technologies	Goldberg et al. (2007); Andresen et al. (2020)	- In-class activity - Class Presentations
Weeks 13 – 15: Module 5 | Research Directions & the Future of Spatial Computing			
Week 13 4/12	**Discussion & Final Presentations** Course discussion and team presentations summarizing results and what was learned from the projects	Shekhar et al. (2015)	- Group Discussion
Week 14 4/19	**Final presentations** Team presentations		- Team presentations

	Topic	Readings and Assignments	Deliverables/Due Dates
Week 15 4/26	**The Future of Spatial Computing** Discussion about trends in spatial computing and critical scientific communication skills moving forward		- Group discussion
Final Examination 5/1-5/8	**Team Video presentation:** Online video presentations summarizing results and what was learned from the projects		- Submit final reports & team video presentations on Blackboard no later than Mon., 5/6 @ 4 p.m. PT

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.