# Spatial Sciences Institute Fall 2020 Internships

The Spatial Sciences Institute has partnered with the following organizations to offer virtual unpaid internships in the Fall 2020 semester. These internships may be undertaken for credit by undergraduates by registering for SSCI 397: Spatial Sciences Internship or by masters students by registering for SSCI 596: Internship in Spatial Sciences.

The specific start and end dates, weekly schedule, and milestones will be determined by project leads with the students selected for the internships. Generally, interns should expect to commit an average of 10 hours per week throughout the semester.

These internships are open to USC students of any major, but require a background in GIS, either through coursework or by experience. Students who have been selected for an SSI funded faculty research project are not eligible for one of these internships.

To apply, please submit your resume, statement of interest for the internship opportunity you are applying for, and your STARS report to Susan Kamei, SSI Managing Director, at kamei@usc.edu by **5 pm on Monday, August 10, 2020**. If you would like to be considered for more than one internship opportunity, please indicate that in your statement of interest, along with your priority ranking.

For questions or more information, please contact Susan Kamei at kamei@usc.edu or Ken Watson, SSI Academic Programs Director at watsonke@usc.edu.


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## USC Sea Grant Program

The USC Sea Grant Program has two-three undergraduate internship opportunities that offer the chance to learn about USC Sea Grant efforts and apply geospatial skills to "real world'" coastal and environmental issues.

One opportunity is to work with Urban Tides, a USC Sea Grant citizen science initiative focused on documenting our changing coastline and visualizing future sea level rise. Data is collected via the ArcGIS Survey123 app, stored in GIS, and displayed in a public story map. Interns on this

project will evaluate the data flow process, organize and analyze data, and develop innovative ways to visualize data.

Another opportunity involves researching and creating a geodatabase of environmental education organizations and initiatives in Los Angeles County. USC Sea Grant has a strong record of connecting ocean sciences and policy to education through partnerships and engaging with local communities. This project would serve as a resource to environmental educators in the community with visualizations and research findings used to identify ongoing efforts, potential partnerships, and gaps.

USC Sea Grant also has an opportunity to create a GIS database and story map of the organizations efforts, research projects, and partnerships in the Southern California region. This effort would explore innovative ways to effectively communicate USC Sea Grant's work through an interactive story map.

Recommended minimum skills/preparation: experience with story maps. Ideal skills/preparation: SSCI 301: Maps and Spatial Reasoning.

Lead:
Melodie Grubbs (M.S. GIST '17), Science, Research & Policy Specialist, USC Sea Grant Program

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## Southern California Association of Governments (SCAG) Planning Division, Research and Analysis Department

SCAG has five internship undergraduate or master student opportunities to work on three projects.

*(1) Smart Land Information System Development*
([http://gisdata-scag.opendata.arcgis.com/search?q=land%20use%20combined](http://gisdata-scag.opendata.arcgis.com/search?q=land%20use%20combined)).

In this project, interns will be:
- developing regional land use datasets for the next RTP/SCS development – GP, SP, ZN, LU;
- updating annual land use datasets (v.2020);
- conducting inventory of potential regional infill sites (v.2020);
- conducting inventory of public-owned lands (v.2020);
- developing integrated land information, including building footprint and housing unit information; and
- collecting and standardizing SB 375 resource areas datasets for the next RTP/SCS development.

Recommended skills/preparation: minimum SSCI 381: Statistics for the Spatial Sciences and/or SSCI 382: Principles of Geographic Information Science; SSCI 383: Geospatial Modeling and Customization preferred;  basic spatial analysis skills; database management and query for modification; programming (Python) knowledge recommended for Data Quality/Quality Assurance; minimum SSCI  581: Concepts for Spatial Thinking.

*(2) GIS Web-based application development for the next RTP/SCS development, e.g. web-based SCAG Data/Map Book*
([https://www.connectsocal.org/Pages/Local-Input-Process.aspx](https://www.connectsocal.org/Pages/Local-Input-Process.aspx))

In this project, interns will be:

- assisting in developing, updating, and maintaining the SCAG GIS database including general plan, specific plan, zoning, existing land use, environmental/resource areas, etc.;
- assisting in establishing an innovative analytical methodology to develop geospatial information and facilitating policy discussion on complex planning issues using spatial and statistical applications;
- assisting in developing and enhancing efficient and effective GIS workflow automation through GIS programming to streamline the regional geospatial data development process;
- assisting in preparing documentation, reports, and maps for various programs and projects;
- assisting in the fulfillment of data/information requests from SCAG internal staff, SCAG member agencies, other public agencies, and the general public; and
- Engaging in research activities related to regional/urban planning.


Recommended skills/preparation: minimum SSCI 301: Maps and Spatial Reasoning; basic cartographic skills; SSCI 581: Concepts for Spatial Thinking.

Ideal candidates should understand whole systems of components workflow – from planning procedures, data geoprocessing, and land use policies to architecture geo-design, environmental impact computational assessments by using computer simulations, modeling, numerical techniques, and statistical data analysis.

Ideal Candidate Qualities:
- Intermediate or advanced GIS skills: ArcGIS 10 & above, strong geoprocessing capabilities, strong GIS cartographic design skills
- Knowledge of GIS concepts and principles, urban planning theories and principles, local general plan, specific plan, and zoning planning process, demographics and economics, planning analysis and research methods
- Knowledge of GIS programming is preferable
- Knowledge of web application development is preferable

- Interdisciplinary areas or majors is preferable
- Excellent MS Office (Word, Excel, etc.) skills
- Strong communication skills and good customer service skills

*(3) Building Characteristics Data Development*

In this project, interns will be:

- Conducting data review and cleaning process for 2019 building footprint dataset
- Developing parcel-level dataset of building characteristics information

Recommended skills/preparation: SSCI 201: Principles in GeoDesign; SSCI 581: Concepts for Spatial Thinking.

Leads:
Tom Vo, Senior Regional Planner, and Jung Seo, Senior Regional Planner
Southern California Association of Governments


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**Los Angeles County Department of Regional Planning**

The LA County Department of Regional Planning has an opportunity for one undergraduate intern to work on the development of a policy guide for future growth and development in the unincorporated communities in East San Gabriel Valley (more info: http://planning.lacounty.gov/site/esgvap/). As part of this effort, the department needs research support to help with technical studies related to topics such as demographic distributions, economic development, housing, transportation, and open space.

Depending upon the intern's background and interests, the intern may work on one of two projects:

*1) Making Rowland Heights Walkable East San Gabriel Valley Planning Project Map Introduction to ESGV Plan*

Recommended skills/preparation: SSCI 381: Statistics for the Spatial Sciences. Ideal preparation: SSCI 382: Principles of Geographic Information Science.


*2) Looking at Land Use and Social Equity through spatial statistical analysis and at times using spatial perspective Equity Educator Tool*

Recommended skills/preparation: gateway planning and/or spatial sciences courses such as PPD 227: Urban Planning and Development; SSCI 165: Sustainability Science in the City; or SSCI 201: Principles of GeoDesign; SSCI 301: Maps and Spatial Reasoning.

Leads:

James Drevno, Regional Planner, and Mi Kim, Section Head, Community Studies East
Los Angeles County Department of Regional Planning