

**USC**Dornsife

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

## **SSCI 591 (35729D and 35730D), Web and Mobile GIS**

### *Syllabus*

**Units:** 4

**Term Day Time:** Fall 2023 - T and Th 9:00-10:50 am PT

**Location:** AHF 145D and DENDornsife

**Instructor:** Jennifer N Swift, Ph.D. GISP

**Office:** AHF B57D

**Regular Office Hours:** T 11am-12pm and W 9-10am PT. Also available most days and times by appointment via email.

**Contact Info:** [jswift@usc.edu](mailto:jswift@usc.edu), 213-740-5841 (office), see contact page on D2L for Zoom Room

**Library Help:** Andy Rutkowski

**Office:** LIPA B40-A

**Office Hours:** Th 10am – 12FFpm or by appointment

**Contact Info:** [arutkows@usc.edu](mailto:arutkows@usc.edu) see contact page on D2L for Zoom Room

**IT Help:** Myron Medalla

**Office:** AHF B56B

**Office Hours:** By appointment via email

**Contact Info:** [spatial\\_support@usc.edu](mailto:spatial_support@usc.edu), 213-740-4415

## **Course Scope and Purpose**

The main goal of this course is to help you become comfortable with building web and mobile mapping applications. Today, the ability to construct and implement high-quality web GIS and mobile GIS applications is a critical asset in a variety of disciplines and industries. Learning to program innovative web and mobile mapping applications facilitates dissemination of your work, and at the same time expands your overall application development skillset. Familiarity with internet scripting languages and how these are utilized to implement web and mobile GIS applications provides in-depth insight into how many government and commercial organizations, as well as individuals, develop these tools.

This course will use modern software tools and information to develop and implement customized web and mobile GIS applications. The students taking this course have varying levels of prior programming experience and may be new to web scripting and web and mobile GIS application development. Essential practical as well as theoretical concepts of web and mobile GIS are covered. You will learn to develop applications through popular platforms such as Esri ArcGIS and Google Maps and use various Application Programming Interfaces (APIs). You will learn the fundamentals of web GIS system architecture, optimization for mobile GIS, web mashups, and distributed geospatial web services. Experience using Web 2.0 technologies that focus on user-generated content, geoportals for finding and accessing geospatial information, and web mapping interoperability in terms of utilizing open-source universal data standards is also provided. In addition, the essentials of user experience and user interface design (UX/UI) are covered, including their importance in e-business and e-government web and mobile mapping applications.

By both necessity and design, this course serves several different audiences. This class is an elective for the Geographic Information Science & Technology M.S. Program's Spatial Data Management and Analytics Tracks and the Graduate Certificate Program, is required in the Geographic Information Science & Technology M.S. Program's Coding and Apps Track, and is an elective in the Geospatial Leadership Graduate Certificate Program, in the Remote Sensing for Earth Observations Graduate Certificate Program, and in the Spatial Data Science M.S. Program.

### ***Learning Outcomes***

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

- Distinguish between and use different web scripting languages commonly employed in web GIS application development to extend open source and proprietary GIS software functionality.
- Critically evaluate the benefits and challenges of developing web GIS applications using different software and system architectures, including cloud-based computing.
- Explain how web and mobile GIS technologies are applicable to academia, e-business, and e-government.
- Identify web and mobile map application design problems and solutions in order to make end user experiences and interfaces easy to use and aesthetically pleasing.
- Solve application development challenges, such as debugging scripts and integrating disparate code modules together into single applications.

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:** 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](mailto: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 is taught in a hybrid modality (depending on your section) with class meetings split between presentations and discussions of the assigned readings and any questions and related topics that arise from the readings. Depending on your section registration and requirements, students attend class sessions in person or participate in the course remotely/ asynchronously (DEN@Dornsife). There is also directed reading of the textbooks and supplementary

readings. Additional readings will be assigned to expand on the text when needed. The course will generally unfold on a multi-weekly basis. When possible, assignments will be given in advance, but usually they will be posted on or before Mondays.

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

## **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 purposes 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 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 all class meetings and presentations.
- 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://keep Teaching.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](mailto: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 period of 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 expected to 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 key way to connect with your classmates and share your discoveries.

## **Required Readings and Supplementary Materials**

The required textbook for this course is:

- Fu, P. 2022. *Getting to Know Web GIS*. 5th ed., Redlands, CA: Esri Press. This book is available online through Amazon and Barnes & Noble.

Supplementary readings will be assigned from various sources including:

- Amazon. 2022. Amazon web services simple monthly calculator." Accessed August 20, 2022. <https://calculator.aws/>.
- Arribas-Bel, Dani, and Jon Reades. 2018. "Geography and computers: Past, present, and future." *Geography Compass* 12(10): e12403.
- Awange, Joseph, and John Kiema. 2019. "Web GIS and Mapping." In *Environmental Geoinformatics, Environmental Science and Engineering*, 249-262. Springer: Cham, Switzerland.
- Fu, Pinde, and J. Sun. 2011. *Web GIS: Principles and Applications*. Redlands, CA: Esri Press.

- Gibbons, Rich. 2019. "Counting the costs of IaaS and SaaS. Computing Weekly." TechTarget, Inc. Accessed August 20, 2022. <https://www.computerweekly.com/feature/Counting-the-costs-of-iaas-and-saas>.
- Goodchild, Michael F. 2008. "Spatial accuracy 2.0." In *Proceedings of the 8<sup>th</sup> International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences*, edited by Michael F. Goodchild and Jingxiong Zhang, 1-7. Edgbaston, United Kingdom: World Academic Press.
- Huang, Qunying. 2019. "Programming of Mobile GIS Applications." *The Geographic Information Science & Technology Body of Knowledge, 1st Quarter 2020 ed.* John P. Wilson (Ed).
- Nittel, Silva, Lars Bodum, Kieth C. Clarke, Michael Gould, Paulo Raposo, Jayant Sharma, and Maria Vasardani. 2016. "Emerging technological trends likely to affect GIScience in the next twenty years." In *Advancing geographic information science: The past and next twenty years*, edited by Harlan Onsrud and Werner Kuhn, 45-48. Needham, Massachusetts: GSDI Association Press.
- Quinn, Sterling. 2018. "Web GIS." *The Geographic Information Science & Technology Body of Knowledge, 1st Quarter 2018 ed.* John P. Wilson (Ed).
- Ricker, Britta and Robert E. Roth. 2018. "Mobile Maps and Responsive Design." *The Geographic Information Science & Technology Body of Knowledge, 2nd Quarter 2018 ed.* John P. Wilson (Ed).
- Roth, Robert. 2015. "Interactivity and cartography: A contemporary perspective on user interface and user experience design from geospatial professionals." *Cartographica* 50(2): 94-115
- Swift, Jennifer, and Daniel Goldberg. 2019. "Web GIS Programming." *The Geographic Information Science & Technology Body of Knowledge, 1st Quarter 2019 ed.* John P. Wilson (Ed).
- Yue, Peng, Peter Baumann, Kaylin Bugbee, and Liangcun Jiang. 2015. "Towards Intelligent GIServices." *Earth Science Informatics* 8: 463-481.

You will also conduct online library research to find articles that apply specific techniques in an application area of your choice for several of the assignments in this course.

## Description and Assessment of Assignments

Your grade in this course will be determined on the basis of several different assessments.

*Resume Assignment - 2 worth 2 points.* We require all current students to post and maintain a public resume, short biography and recent photo on our shared SSI Student Community Blackboard site. Please prepare your resume in the SSI template which will be provided to you. A second resume assignment provides you a chance to add any newly learned tools and project products in this course to your resume. 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.

*Projects - 5 worth a total of 60 points.* These assignments require students to complete the basic types of programming projects asked of professional web GIS application developers in real world settings. Prompts will list helpful information, such as Esri, JavaScript and other web scripting tutorials, for becoming familiar with ways that concepts learned in the course are implemented in various geospatial software packages. The deliverables will be final written summaries of the students' goals, methods, data, and results for each project.

*Reading and Research Discussions - 4 worth a total of 16 points.* These assignments call on students to critically analyze required readings, identify relevant case studies employing the methodologies and concepts we cover in class, and to discuss them with the instructor and their classmates during synchronous meetings and/or online discussion forums via D2L.

*Comprehensive Exam - 1 worth 22 points.* The comprehensive exam will cover material learned throughout the duration of the semester. It may be mixed format and may consist of multiple choice, short answer, and simple problem questions.

## Grading Breakdown

Careful planning and a serious, consistent commitment will be required for students to successfully navigate the deliverables in this and other SSCI courses. The table below summarizes the SSCI 581 course assignments and their point distribution:

Assessment	Number	Points Each	Total Points
Resume Assignment	2	1	2
Reading and Research Assignments	4	4	16
Projects	5	12	60
Comprehensive Exam	1	22	22
Total	12		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 D2L by the due dates specified in the Course Schedule below and on the assignment instructions.

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.

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

Week	Topic	Assignments	Deliverables: Due Dates
<b>Module 1   Introduction to Internet Scripting for Web GIS</b>			
<b>Week 1</b> 8/21	Introduction to the Course and Building Web Pages	Resume Assignment Reading & Research Discussion 1 Project 1 Awange and Kiema (2019) Fu and Sun (2011), Ch. 1, 2 Quinn (2018) Swift & Goldberg (2019)	Resume Assignment 1: Tuesday, 8/29
<b>Week 2</b> 8/28	Basic Internet Scripting with JavaScript		Reading & Research Discussion 1: Thursday, 8/31 & Friday, 9/1
<b>Week 3</b> 9/5 *Monday, 9/4 is a university holiday (Labor Day)	Using the JavaScript Library		Project 1 HTML Web Page: Tuesday, 9/5  Project 1 Workflow: Thursday, 9/7 & Friday, 9/8  Project 1 JavaScript, JQuery & CSS Pages: Monday, 9/11
<b>Module 2   Fundamentals of Web Maps, Applications, and Services</b>			
<b>Week 4</b> 9/11	Geospatial Web Services, Web Maps, Apps, and Dashboards	Project 2 Reading & Research Discussion 2 Fu (2022), Ch. 1-3, 5-7 Fu and Sun (2011), Ch. 3 Yue et al. (2015)	Project 1 Report: Tuesday, 9/12
<b>Week 5</b> 9/18	Raster and Geoprocessing Services in Web GIS Apps and Notebooks		Project 2 Workflow: Tuesday, 9/19 & Wednesday, 9/20  Reading & Research Discussion 2: Thursday, 9/21 & Friday, 9/22



Week	Topic	Assignments	Deliverables: Due Dates
<b>Module 3   Web GIS API's</b>			
<b>Week 6</b> 9/25	Sharing Data and Code	Project 3 Reading & Research Discussion 3 Fu (2022), Ch. 10 Fu and Sun (2011), Ch. 4, 6, 7	Project 2 Report: Tuesday, 9/26
<b>Week 7</b> 10/2	Introduction to Web GIS APIs		Reading & Research Discussion 3: Thursday, 10/5 & Friday, 10/6
<b>Week 8</b> 10/10* *10/12-10/13 is a university holiday	Coding with Google Maps and Other Web GIS API'S		Project 3 Workflow: Tuesday, 10/10 & Wednesday, 10/11
<b>Module 4   Web GIS Applications for Mobile Devices</b>			
<b>Week 9</b> 10/16	User Experience/User Interface (UX/UI) Design	Project 4 Reading & Research Discussion 4 Fu (2022), Ch. 4 Huang (2019) Ricker & Roth (2018) Roth (2015)	Project 3 Report: Tuesday, 10/17
<b>Week 10</b> 10/23	Building Web GIS applications for mobile devices		Project 4 Workflow: Tuesday, 10/24 & Wednesday, 10/25  Reading & Research Discussion 4: Thursday, 10/26 & Friday, 10/27
<b>Module 5   Web GIS Application Development in the Cloud</b>			
<b>Week 11</b> 10/30	Cloud-Based Infrastructure	Project 5 Fu (2022), Ch. 8, 9	Project 4 Report & Testing & Feedback: Tuesday, 10/31 & Wednesday, 11/1
<b>Week 12</b> 11/6	Developing Web GIS Applications in the Cloud		
<b>Week 13</b> 11/13	Future challenges for Web and Mobile GIS Programmers	Amazon (2022) Arribas-Bel et al. (2018) Gibbons (2019) Nittel et al. (2016)	Project 5 Workflow: Tuesday, 11/14 & Wednesday, 11/15
<b>Week 14*</b> 11/20*  *11/22-11/24 is a university holiday	Project 5 Workflow Reviews		Project 5 Report: Tuesday, 11/28  Resume Assignment 2: Thursday, 11/30
<b>Week 15</b> 11/27 Friday, 12/1 is the last day of class, 12/2-12/5 study days	Resume Workshop & Comprehensive Exam Review		All assignments must be submitted no later than 5:00 PM PT on Friday, 12/1
<b>Final Exams</b> 12/6-12/13	Comprehensive Exam		Thursday, December 7, 11:00 AM – 1:00 PM 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 (including AI generated) 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](http://osas.usc.edu). You may contact OSAS at (213) 740-0776 or via email at [osasfrontdesk@usc.edu](mailto: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](mailto: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.