



## SSCI 599 Special Topics: Geospatial Data Integration

### Course Syllabus – Spring 2014

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**Office Hours:** I am always available via email. Also, I am available for chats via phone or Skype, audio or video, most days and times *by prior arrangement* via email. According to needs and the course schedule, we will also meet in my Adobe Connect room for a few face-to-face sessions. Just get in touch if you need to communicate with me!

#### *Course Scope and Purpose*

Data integration is key to the successful application of GIS to help address today's environmental and social challenges. Data integration is the process of combining data residing in different sources and providing users with a unified view of these data. This process becomes significant in a variety of situations, which include both commercial (i.e. companies need to merge their databases) and scientific (i.e. combining research results from different repositories) domains. Data integration has come into play increasingly as the volume and the need to share existing data continues to expand exponentially. In fact, the easy access to very advanced data sources and spatial tools in today's GIS is deceptive as it is fairly simple to walk through wizards and push buttons to perform a data extraction or analysis, but it is much more difficult to choose among similar data from different sources and to determine their correct use in GIS-based environments. This course builds on the introduction to spatial data acquisition in SSCI 587 and focuses some additional data streams and the impacts of data quality and issues related on data integration. Students will explore and use various kinds of data such as "Big data", Volunteered Geographic Information (VGI) data, and other forms of crowd-sourced data available through public spatial data infrastructures and web portals. The tools and concepts we will cover apply to medium to advanced data integration and analysis tasks in GIS-based environments needed to meet the specific needs of the end users. Students will explore these concepts using both proprietary platforms such as Esri's ArcGIS and Open Source GIS.

Designed as an online version of an advanced studio course and graduate seminar, you will work individually and in groups to learn, explore and share information about options for geospatial data integration, data assessment and data analysis. The hands-on assignments in this course are not intended to be comprehensive, but rather to develop skills that will help you find, understand and use the multitude of data, tools and related learning resources when you need them. While part of your work will be done individually, you will have the opportunity to apply the new skills to integrate, evaluate and analyze geospatial data in a group project, and share your findings and progress with your peers. You will also be afforded the opportunity to individually explore alternative approaches and tools to provide added insights to the group project and your own individual project component. Recommended preparation: SSCI 587 or with permission of the instructor.



### *Why should you take this course?*

This course will provide you with an understanding of public domain data types and resources both from the social and scientific domains. It will also teach you how to access public data types, and to explore, assess, pre-process and use them in various integration approaches for GIS-based analysis and applications in real world scenarios. Helping you become an informed data integration analyst is the goal of this course. .

Expectations in the workplace for today's GIS professionals include the ability to learn continuously, work with many different kinds of data and with professionals in other disciplines, domains, and agencies. There are many unique and deep skill sets needed in today's world. However, they do not stand alone; the ability to collaborate, to learn from others and to expand opportunities jointly are essential. The collaborative component of this course is essential.

### *Learning Outcomes*

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

- Develop strategies to capture geospatial data and any accompanying metadata from various sources;
- Identify, download and format vector and raster spatial data from an online spatial data portal;
- Identify spatial data from associated metadata files;
- Integrate multiple geospatial data sources in one or more GIS-based environments;
- Analyze spatial data in one or more GIS-based analysis environments;
- Assess and solve moderate to complex real world geospatial problems;
- Evaluate the impacts of data quality on the outcomes of spatial analysis and decision making;
- Critically evaluate different methodologies for GIS-based integration and analysis and their impact on open distribution;
- Collaborate with others to contribute in an original GIS-based integration project relevant to real-world geospatial problems using Esri's ArcGIS or Open Source GIS tools;
- Evaluate the impact of the emerging GIS platforms of Cloud and Grid computing on geospatial analysis and modeling.]

### *Textbook and other readings*

The required textbook for this course is:

Kerski, Joseph, 2012. *The GIS Guide to Public Domain Data*. Redlands, CA, Esri Press., 388 p.  
(With [ArcGIS Online group entitled The GIS Guide to Public Domain Data](#)). (ISBN: 978-1-58948-244-9). We will refer to these materials as **GPDD** throughout the course.

Additional readings from online sources will be assigned as appropriate.

### *Course Structure*

The main theoretical concepts are provided through text readings and self-directed research you will do in the published literature and on the Web and through hands-on experimentation with various tools and technologies. Additional readings will be assigned to add additional background material when needed.



The course will generally unfold on a weekly basis. Each week will be focused on a particular aspect of spatial data capture and/or integration. In order to make sure you are exposed to a broad a range of material you will, individually, be challenged through readings, discussions and hands-on assignments. Within small groups you will work on the building blocks of the final group project, on a topic of your choice. Each group will be charged with learning and sharing a particular approach to data sources, management, and integration as part of a GIS-based spatial analysis approach relevant to the solution of the chosen real world geospatial problem. Group members will support each other as you learn through the course materials and self-directed research. Each group will present periodically their progress to the remainder of the class. In this way you will learn some of the material that applies to your project deeply while also learning other aspects and nuances that are related to other projects. You will finish the course by completing a geospatial integration and analysis project as a group. You will also work on your own you will be working on a self-identified topic, within a specific aspect of the group project, by researching alternative options for spatial data integration or analysis. This approach will stimulate the group work and at the same time will allow each of the group members to individually explore alternatives or improvements.

### *Assessment*

Assessment is by coursework. There will be four kinds of assessments. Grade penalties apply for late assignments. 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.

*Graded Discussions/Blogs/Wikis* (15 submissions contributing 30% of course grade) – Weekly we will explore topics through graded discussion forums, blogs and/or wikis. These tasks are based on provided readings and are designed to engage you in the material and to expand your research results beyond what you are personally able to uncover. These submissions will be due no later than 11:59 p.m. PST on Mondays.

*Data Integration Exercises* (5 exercises contributing 20% of course grade). These will be a tri-weekly hands-on activity that will allow you to explore scenarios, of real world application scenarios within a GIS-base environment (ArcGIS), that involve the use of different data sources, data analysis and integration strategies, and visualization of the results. These submissions will be due no later than 11:59 p.m. PST on Thursdays.

*Group Exploration towards Final Group Projects* (4 submissions contributing 20% of course grade) – Building on the reading and data integration exercises, the working groups will be involved in collaborative efforts to learn and work with spatial data types, integration approaches, GIS-based spatial analysis techniques and tools that work for their identified project. To assist you in this learning, journals and other collaborative tools will be used to record and share what you learn as a group. Each of the final project working groups will deliver a group presentation to share what you have learned and the progress on your project with your classmates. These will be graded through self and peer assessment methods. These reports will be due no later than 11:59 p.m. PST on Thursdays as well.

*Final Project* (2 components contributing 30% of course grade). The Final Project provides both a group and an individual opportunity to integrate all that you have learned in the semester. More details on the project will be provided as the course develops. In general it will consist of a



proposal, a final presentation and a report:

*Group Project* (20 points) – a Report (10 point) and a Presentation (10 point) of the problem or scenario you are attempting to address, the data and technologies chosen for the project, your proposed method for implementing a solution, your expected outcomes and deliverables, and any potential problems that you think could arise. The presentation (*live via Adobe Connect*) will consist of 3-5 slides illustrating highlights from the report followed by a live demonstration of your application. The presentation will be equally shared by the group's members and with the public via the Spatial Sciences Institute website.

*Individual Project* (10 points) – a Report (5 points) and a Presentation (5 points) of a task/contribution to the group project describing an alternative approach. This is your opportunity to research and use an **alternative approach or tools** to address a task/issue encountered in the group project.

*Grading* – In general, assignments will be graded on an A/B/C scale where A is excellent, B is good, C is minimum passing for graduate credit. (Note that you must have a B or higher average overall in the program to receive a graduate degree.) These are equivalent to the levels of performance expected for the course grade. Late submissions will be docked one grade. No grade will be given for assignments turned in over one week late.

### **Requirements**

*Recommended Background* – SSCI 587: **Spatial Data Acquisition** or, with permission of the instructor, commensurate experience and knowledge in the fundamentals of spatial data acquisition.

*Workload* – This is a four credit, one semester course. Students should expect to spend 12-15 hours per week completing the work in this course.

*Technology* – There are several technology requirements:

- Every student must have a computer with a fast Internet connection (DSL at a minimum). Since we now serve the key software from the Server, you can use either a Mac or a PC.
- Every student **MUST** have a functional webcam and audio input (either phone or computer) for use whenever a presentation or face-to-face meeting is scheduled.
- ArcGIS is provided on-line via the GIST Server, you do not need to install it on your own computer.
- In some cases, you will need to download and install local versions of (free) Open Source GIS or other tools.

*Communications* – This is a distance-learning course, so most of our interactions will be asynchronous (not at the same time) although at several times during the course we will have small group synchronous meetings. All materials to be handed in will be submitted via Blackboard (Bb). We will have several on-line bulletin board discussions and I will create and monitor BB forums through which we can discuss issues and comments on the course assignments, exercises and project as the need arises.

I will send via e-mail through Blackboard any notices that are time sensitive. Please be sure that you read as soon as possible all e-mail sent from Blackboard or from me. Also double check to be sure that mail sent from both the USC blackboard accounts and my private domain



(paganell@usc.edu) does not go into your junk mail!

While I am usually on-line all day and will probably respond to e-mails from students very quickly, I will endeavor to respond to all email within 36 hours of receipt, aiming for no more than 48 hours delay. In the rare case when I expect to be off-line for more than 48 hours, I will post an announcement on the Blackboard site.

*Your responsibility* – It is each student's responsibility to stay informed about what is going on in our course. In addition to e-mail 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, and do so more than once a week!

### *Students with Disabilities*

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to your instructor as early in the semester as possible. DSP is located in STU 301 and is open from 8:30 a.m. to 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

### *Statement on Academic Integrity*

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: [http://web-app.usc.edu/scampus/wp-content/uploads/2009/08/appendix\\_a.pdf](http://web-app.usc.edu/scampus/wp-content/uploads/2009/08/appendix_a.pdf). Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

Also, for more information about the University Grading policy see the documentation found at [http://www.usc.edu/dept/ARR/private/forms/Handbooks/Grade\\_Handbook\\_rev082010.pdf](http://www.usc.edu/dept/ARR/private/forms/Handbooks/Grade_Handbook_rev082010.pdf).

### *Important Administrative Dates\**

- 1/13: Spring semester classes begin
- 1/20: Martin Luther King Day, University holiday
- 1/31: Last day to register and add classes
- 1/31: Last day to drop a class without a mark of "W" and receive a 100% refund
- 2/17: Presidents' Day, University holiday
- 3/17-22: Spring recess
- 3/25: Deadline to submit signed Approval to Submit form to the Graduate School\*\*
- 4/1: Deadline to upload thesis or dissertation manuscript\*\*
- 4/11: Last day to drop a class with a mark of W



- 5/2: Spring semester classes end
- 5/3-6: Study days
- 5/14: Final Examinations end
- 5/16: Commencement

\*[http://www.usc.edu/academics/classes/term\\_20141/calendar.html](http://www.usc.edu/academics/classes/term_20141/calendar.html)

\*\*[http://www.usc.edu/schools/GraduateSchool/current\\_thesis\\_dissert\\_03.html](http://www.usc.edu/schools/GraduateSchool/current_thesis_dissert_03.html)

*In addition to the usual Monday due dates for Readings and Thursday due dates for Hands-On assignments as indicated in the table on the next page, the following special due dates have been set:*

- Group Project Proposal Meetings – time slots will be scheduled by 14<sup>th</sup> February for meetings spread across four days starting on 18<sup>th</sup> February and ending on 21<sup>th</sup> February.
- Group Project Progress Meetings – time slots will be scheduled by April 4<sup>th</sup> for meetings spread across four days starting on April 7<sup>th</sup> April and ending on 11<sup>th</sup> April.
- Group Presentation of Final Project – time slots will be scheduled by May 2<sup>nd</sup> for one or other of two days (6<sup>th</sup> to 7<sup>th</sup> May).
- Submission of Group Final Project Report – May 9<sup>th</sup> May
- Submission of Individual Final Project Report – 13<sup>th</sup> May

*Overview of Course Schedule - Next Page*



Overview of Course Schedule

Week	Week Begins (Monday)	Theme	Week's Readings and Practice	Assessments due the following:		
				Monday Reading Assign. /Discuss.	Thursday Exercises	See previous page and Project Doc
			Reading			Project
1	13-Jan	Global challenges - BIG Data - VGI - Crowdsourcing	Papers, GPDD 1	1		Resume
2	21-Jan*	Data Infrastructures - BIG Data - VGI - GIS Tools	Papers, GPDD 2,3	2	1	
3	27-Jan	Location-Based Social Network & Facebook/Twitter, OSM data& Projects	Papers, OSM	3		
4	3-Feb	Semantic & Interoperability of data Integration	Papers, GPDD 5, 6	4	2	
5	10-Feb	Assessing the Accuracy of VGI	Paper	5		
6	18-Feb**	Sensor Data -VGI and OSM	Papers	6		Group Meetings
7	24-Feb	Strategic collaboration and volunteer capacity	Papers, GPDD 7, 8	7	3	Group Proposal
8	3-Mar	Citizen Webs - GeoPortals	Papers	8		
9	10-Mar	Mashups on the Web	Papers	9		
	17-Mar	<i>Spring recess (17-22)</i>				
10	24-Mar	Open GIS cloud computing platforms	Papers, GPDD 9	10	4	
11	31-Mar	Enabling geospatial simulation models - Cloud computing	Papers	11		
12	7-Apr	Enabling geospatial simulation models - Grid computing	Papers	12		Group Progress Meetings
13	14-Apr	Projects - guided topics	Papers	13	5	
14	21-Apr	Future of Public Domain Data on the Cloud	Papers, GPDD 10	14		
15	28-Apr	Digital Earth: Reality or Hype? Wrap-up	Papers	15		
***	5-May	Final Projects and Presentations	Papers			Group Final Projects Presentations & Reports
****	12-May	Final Projects & Wrap-up				Individual Final Report and Presentation
****	14-May	End of Term				



\*Monday **January 20** is Martin Luther King Day, USC Holiday

\*\*Monday **February 17** is President’s Day, USC Holiday

\*\*\*May 3-6 listed as “Study Days” on USC calendar – No assignments or presentations due on these dates / 4 days, in order to follow the university policy

\*\*\*\*May 7-14 – listed as “Final Exams” on USC calendar

*Detailed Course Schedule*

<p><b>Week 1</b></p>	
<p><i>Jan 13-17</i></p> <ul style="list-style-type: none"> <li>• Global challenges - BIG Data - VGI - Crowdsourcing</li> </ul>	<p><b>Learning Objectives</b></p> <ul style="list-style-type: none"> <li>• Identify data sources and how they are used</li> <li>• Describe the importance of different data types</li> </ul> <p><b>Scheduled events</b></p> <ul style="list-style-type: none"> <li>• First day of term – Monday, 13<sup>th</sup> January</li> </ul> <p><b>Assignments</b></p> <ul style="list-style-type: none"> <li>• Readings and research</li> <li>• Post your own identified data challenge</li> </ul>
<p><b>Week 2</b></p>	
<p><i>Jan 21-Jan 24</i></p> <ul style="list-style-type: none"> <li>• Data Infrastructures - BIG Data, VGI</li> <li>• GIS-based data infrastructures and Tools</li> </ul>	<p><b>Learning Objectives</b></p> <ul style="list-style-type: none"> <li>• Describe the types of data infrastructures in relation to BIG Data and VGI</li> <li>• Identify GIS-based types of data infrastructures</li> <li>• Identify and explore GIS-based Tools</li> </ul> <p><b>Scheduled events</b></p> <ul style="list-style-type: none"> <li>• Martin Luther King’s Birthday – Monday, 20<sup>th</sup> January, University offices closed</li> </ul> <p><b>Assignments</b></p> <ul style="list-style-type: none"> <li>• Readings and research</li> <li>• Complete Lynda.com module on SQL queries</li> <li>• GPDD Exercise 1</li> <li>• Post your contribution on data infrastructures</li> </ul>

*Detailed Course Schedule –continued*

<p><b>Week 3</b></p> <p><i>Jan 27-Jan 31</i></p> <ul style="list-style-type: none"><li>• Location-Based Social Network &amp; Facebook/Twitter</li><li>• OSM Data and Projects</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Describe Location-Based Social Network &amp; Facebook/Twitter and how they are used</li><li>• Discuss and explore OSM data, applications and projects</li><li>• Group work to develop project ideas</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• Last day to drop for refund – Friday, 31<sup>st</sup> January</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• OSM data and Projects</li><li>• Post your contribution on location-based social networks</li><li>• Post group progress summary on project ideas and work plan</li></ul>
<p><b>Week 4</b></p> <p><i>Feb 3-7</i></p> <ul style="list-style-type: none"><li>• Semantic &amp; Interoperability of Data Integration</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Describe the meaning of semantic for data</li><li>• Explain how interoperability play a role in data integration</li><li>• Describe meaning and types of data integration</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• None</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Read and research</li><li>• GPDD Exercise 2</li><li>• Post your contribution on semantic &amp; interoperability of data Integration</li></ul>

*Detailed Course Schedule –continued*

<p><b>Week 5</b></p> <p><i>Feb 10-14</i></p> <ul style="list-style-type: none"><li>• Assessing the Accuracy of VGI</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Describe what is data accuracy and how it is assessed</li><li>• Explain how to conduct data accuracy assessment on VGI</li><li>• Describe the importance of VGI</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• None</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Post your contribution on the assessment of accuracy of VGI</li></ul>
<p><b>Week 6</b></p> <p><i>Feb 18-21</i></p> <ul style="list-style-type: none"><li>• Sensor Data - VGI and OSM</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Describe the meaning of Sensor Data</li><li>• Describe applications in which VGI and OSM data are used</li><li>• Group work to identify data sources and data assessment</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• President's Day – Monday, 17<sup>th</sup> February, University offices closed</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Group meeting</li><li>• Readings and research</li><li>• Post your contribution on sensor data - VGI and OSM</li><li>• Post group progress summary on data sources and assessment</li></ul>

*Detailed Course Schedule –continued*

<b>Week 7</b>	
<p><i>Feb 24-Feb 28</i></p> <ul style="list-style-type: none"><li>• Strategic collaboration and volunteer capacity</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Discuss strategic collaboration and volunteer capacity</li><li>• Describe the role of volunteer capacity and its impact</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• None</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Group Proposal</li><li>• Readings and research</li><li>• GPDD Exercise 3</li><li>• Post your contribution on strategic collaboration and volunteer capacity</li></ul>
<b>Week 8</b>	
<p><i>Mar 3-Mar 7</i></p> <ul style="list-style-type: none"><li>• Citizen Webs - GeoPortals</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Discuss Citizen Webs and related examples and projects</li><li>• Describe Geoportals and their use</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• None</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Post your contribution on the concept of Citizen Webs and GeoPortals</li></ul>

*Detailed Course Schedule –continued*

<p><b>Week 9</b></p> <p><i>Mar 10-Mar 15</i></p> <ul style="list-style-type: none"><li>• Mashups on the Web</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Describe what Mashups are and their use and role on the Web</li><li>• Discuss the role of mashups as data resource</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• Spring Recess – March 17-22</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Post your contribution on Mashups on the Web</li><li>• Post group progress summary on data integration</li></ul>
<p><b>Week 10</b></p> <p><i>Mar 24-Mar 28</i></p> <ul style="list-style-type: none"><li>• Open GIS cloud computing platforms</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Discuss what is Open GIS cloud computing</li><li>• Identify and explore Open GIS cloud computing platforms</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• None</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• GPDD Exercise 4</li><li>• Post your contribution on Open GIS cloud computing platforms</li></ul>

*Detailed Course Schedule –continued*

<p><b>Week 11</b></p> <p><i>Mar 31-Apr 4</i></p> <ul style="list-style-type: none"><li>• Enabling geospatial simulation models – Cloud computing</li></ul>	<p><b>Learning Objectives</b></p> <ul style="list-style-type: none"><li>• Describe the impact of geospatial simulation models – Cloud computing</li><li>• Discuss examples of geospatial simulation models – Cloud computing</li></ul> <p><b>Scheduled events</b></p> <ul style="list-style-type: none"><li>• None</li></ul> <p><b>Assignments</b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Post your contribution on geospatial simulation models – Cloud computing</li></ul>
<p><b>Week 12</b></p> <p><i>Apr 7-Apr 11</i></p> <ul style="list-style-type: none"><li>• Enabling geospatial simulation models – Grid computing</li></ul>	<p><b>Learning Objectives</b></p> <ul style="list-style-type: none"><li>• Describe the impact of geospatial simulation models – Grid computing</li><li>• Discuss examples of geospatial simulation models – Grid computing</li></ul> <p><b>Scheduled events</b></p> <ul style="list-style-type: none"><li>• Last day to drop with W – Friday, 11<sup>th</sup> April</li></ul> <p><b>Assignments</b></p> <ul style="list-style-type: none"><li>• Group Progress meeting</li><li>• Readings and research</li><li>• Post your contribution on geospatial simulation models – Grid computing</li><li>• Post group progress summary on assessment of results</li></ul>

*Detailed Course Schedule –continued*

<b>Week 13</b>  <i>Apr 14-Apr 18</i> <ul style="list-style-type: none"><li>• Project focus week – Guided topics</li></ul>	<b><i>Learning Objectives</i></b> <ul style="list-style-type: none"><li>• Develop a data integration Project Tutorial</li></ul> <b><i>Scheduled events</i></b> <ul style="list-style-type: none"><li>• None</li></ul> <b><i>Assignments</i></b> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Project focus Exercise 5 (Project Tutorial)</li><li>• Post your summary on the guided project topic readings</li><li>• Post group Project Tutorial</li></ul>
<b>Week 14</b>  <i>Apr 21-Apr 25</i> <ul style="list-style-type: none"><li>• Future of Public Domain Data on the Could</li></ul>	<b><i>Learning Objectives</i></b> <ul style="list-style-type: none"><li>• Discuss the future of public domain data on the Could</li></ul> <b><i>Scheduled events</i></b> <ul style="list-style-type: none"><li>• None</li></ul> <b><i>Assignments</i></b> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Post your discussion on the Future of Public Domain Data on the Could</li></ul>

*Detailed Course Schedule –continued*

<p><b>Week 15</b></p> <p><i>Apr 28-May 2</i></p> <ul style="list-style-type: none"><li>• Digital Earth: Reality or Hype? Wrap-up</li><li>• Documentation of a Final Projects</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Discuss the concept of Digital Earth: Reality or Hype?</li><li>• Complete the document of a Final Projects</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• End of instructional period – Friday, 2<sup>nd</sup> May</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Readings and research</li><li>• Post your view of the Digital Earth concept</li><li>• Post complete documentation of group project tutorial</li></ul>
<p><b>Exam period</b></p> <p><i>May 4-14</i></p> <ul style="list-style-type: none"><li>• Presentation of Final Projects</li></ul>	<p><b><i>Learning Objectives</i></b></p> <ul style="list-style-type: none"><li>• Present the results of your final project effort to the class in a simple, well-illustrated manner that includes details of objectives, data sources, data integration, data assessment, analysis and assessment of results</li></ul> <p><b><i>Scheduled events</i></b></p> <ul style="list-style-type: none"><li>• Study days (no homework due) 3-6<sup>th</sup> May</li></ul> <p><b><i>Assignments</i></b></p> <ul style="list-style-type: none"><li>• Present group final project</li><li>• Post group final project</li><li>• Submit group final project</li><li>• Post your individual ancillary component of the group final project</li><li>• Submit your individual ancillary component of the group final project</li></ul>