

Term Information

Effective Term Spring 2018

General Information

Course Bulletin Listing/Subject Area Adv Computing Cntr Arts&Design
Fiscal Unit/Academic Org Advanced Computing Center/Arts - D0210
College/Academic Group Arts and Sciences
Level/Career Graduate, Undergraduate
Course Number/Catalog 5150
Course Title Emerging Trends in Data Visualization
Transcript Abbreviation EmergTrendsDataVis
Course Description This course enables students to explore new and emerging visualization approaches, topics and trends in visualization research and their applications. Students will research, write about, experience, propose, and prototype trends and possibilities for visualization.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 8 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Seminar, Laboratory, Lecture
Grade Roster Component Seminar
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites
Exclusions
Electronically Enforced

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 50.0499
Subsidy Level Doctoral Course
Intended Rank Junior, Senior, Masters, Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Examine and evaluate emerging approaches to visualization;
- Describe the trends of visualization research and practice;
- Facilitate, moderate, and participate in discussion on visualization research topics;
- Articulate and analyze the factors that are prompting changes in visualization;
- Apply new models to your own prototypes of future visualization possibilities;

Content Topic List

- Storytelling with data; data interpretation;
- emerging trends in data visualization;
- VR/AR in relation to data visualization;
- animation and interactivity in relation to data visualization

Sought Concurrence

Yes

Attachments

- ACCAD5150_EmerginTrends_VizSyllabus.pdf

(Syllabus. Owner: Palazzi, Maria)

- ACCAD_EmerginTrendsCoverLetter.pdf

(Cover Letter. Owner: Palazzi, Maria)

- ConcurrenceFor5150EmergTrends.pdf: Concurrences

(Concurrence. Owner: Vankeerbergen, Bernadette Chantal)

Comments

- Palazzi has requested concurrence from Art, AAEP and History of Art. *(by Palazzi, Maria on 04/16/2017 08:10 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Palazzi, Maria	04/16/2017 08:11 PM	Submitted for Approval
Approved	Palazzi, Maria	04/16/2017 08:22 PM	Unit Approval
Approved	Heysel, Garrett Robert	04/16/2017 08:39 PM	College Approval
Pending Approval	Nolen, Dawn Vankeerbergen, Bernadette Chantal Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler	04/16/2017 08:39 PM	ASCCAO Approval



April 16, 2017

Dear Curriculum Committees,

The proposed new course, **ACCAD 5150** *Emerging Trends in Data Visualization*, is one of five courses in the new Data Visualization Specialization in the Data Analytics Major that was submitted for approval on February 6, 2017.

The A&S NMS panel requested that the course be created and submitted at the same time that the specialization is under consideration.

Thank you for your consideration.

Maria Palazzi
Director/ACCAD
Professor/Design
palazzi.1@osu.edu

SP 2018
80 minutes/2x week
Professor <name>
e: <name>@osu.edu
v: 292-xxxx
Office Hours: <times> or by appointment

Course Description:

This course enables students to explore new and emerging visualization approaches, topics and trends in visualization research and their applications. Students will research, write about, experience, propose, and prototype trends and possibilities for visualization.

Learning Objectives:

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

- Examine and evaluate emerging approaches to visualization;
- Describe the trends of visualization research and practice;
- Facilitate, moderate, and participate in discussion on visualization research topics;
- Articulate and analyze the factors that are prompting changes in visualization;
- Apply new models to your own prototypes of future visualization possibilities;

Course Methodology:

Using experiential learning approaches students will engage current and new visualization technologies at the Advanced Computing Center for the Arts and Design (ACCAD) as a way of developing hands-on experiences with the possibilities of what the future portends for visualization developments and approaches.

The class meets twice a week for lectures and class activities which include discussion, group work in prototyping, lab visits).

- **Readings:** The goal of the reading assignments is to familiarize yourself with new terminology and definitions, to learn about new developments in visualization, and to develop the ability to contextualize research writings as a useful tool for understanding where the field is heading.
- **Lab Visits:** In addition to working at ACCAD, you will have the opportunity to visit various labs and researchers across campus that are engaged with various and discipline-specific forms of visualization to organize, understand and enhance their work.
- **Prototyping:** Based on your experiences in the class, you will generate ideas on emerging trends in visualizations using prototyping approaches alone or in teams, depending on the task. The format for prototype presentation will require you to critique each others work.

- **Discussion/Written Responses:** You will hone your skills in discussion and analytical writing by preparing responses to readings, prototyping and lab visits that address emerging trends in visualization.

Required Reading

Visualization Analysis and Design, Tamara Munzner, CRC Press (2014) – VAD

Interactive Data Visualization for the Web, Scott Murray, O’Reilly (2013) - D3

- *Free Safari book version via OSU Libraries*

Visualize This, The Flowing Data Guide to Design, Visualization, and Statistics, Nathan Yau

Data Points: Visualization That Means Something, Nathan Yau

Course Assignments and Value:

Writing and Responding--30 points

Students will produce 10 discussion posts of 200 words, and will additionally respond to one of their peer’s blog posts for every posted assignment. When a peer responds to an initial blog post, an additional response is required from the writer of the blog post. The 200 word initial post counts as 50% of the credit given to blog posts, and substantive responses to peer posts count as 50% of the credit. There is no minimum word count for peer responses, but responses must be substantive. Simple affirmation like “good job” or “nice post” will not count as a response. A substantive blog response should encourage further conversation, raise a question with the post, try to clarify an idea, or productively add to the topic. The weekly discussion is a core component of this course and will be graded on a weekly basis. The responses and conversations that follow initial posts ought to remain respectful and courteous.

Blog post criteria:

- Blog posts are due by class time
- 200 words minimum
- Relevant to course trend research

Response criteria:

- Substantive
- Timely-- initial responses due by Wednesday morning class time
- Secondary responses by Friday morning class time

Mini presentations of prototype concepts and development —2 @ 15 points each

The mini presentation allows students to present their prototype to their peers for feedback. The mini presentation allows students to test their chosen presentation method, as well as practice presenting. Students will be expected to have a developed research idea to present to their peers.

Presentation criteria:

- No less than 5 minutes, no more than 6
- Presentation appears practiced
- Presenter does not read from slides, but has prepared notes to assist with presentation
- A developed research idea on future possibilities for visualization is presented

Final presentation of prototype --40 points

The final presentation motivates the work for the entire semester. The textbook selections and course readings, the workshops, lab visits, the blog posts--all are designed to move students toward the completion of research for the final prototype and presentation.

Final projects do not need to be limited to the types of analyses and visualizations described above, but they need to substantially explore the trend chosen by the student and investigate its relevance, emergence, and potential impact.

Components of final assignment:

- Presentation software (PowerPoint, Prezi, Google Presentation, etc.)
- Delivery method (How will this research be re-delivered after presentation? YouTube, Facebook, Twitter, class website. What is our broader audience?)
- Research (How do we determine a well-investigated research question?)
- Data (How many data visualizations should be required? What types of data should be presented? How much space in the presentation should be given to data description and analysis?)

Total Points for Semester: 100

OSU Grading Scale

93-100.0 A	87-89.9 B+	77-79.9 C+	67-69.9 D+
90-92.9 A-	83-86.9 B	73-76.9 C	60-66.0 D
	80-82.9 B-	70-72.9 C-	Below 60 E

Course Grading Policy:

To receive a passing grade in the course, students must demonstrate satisfactory achievement of course objectives through fulfillment of course projects, presentations, and exam and by contributing to class discussions and critiques. Students will be expected to make a formal presentation of their progress and/or project outcomes on dates specified by the course timeline.

Adherence to deadlines is expected. It is the individual student's responsibility to keep track of the goals and deadlines and to present the work to the class and instructor on the specified dates. All assignments must be completed and turned in in order to receive a passing grade in the course.

Late or missed goals will be graded as follows:

- An assignment turned in after the original due date but by the start of the next class will have the grade reduced 20%
- An assignment turned in after the original due date and after the subsequent next class start time but before the start time of the 2nd subsequent class (1 week) will have the grade reduced 40%
- Late assignments turned in more than 1 week past the original due date will receive a failing grade (E) but students must still complete all assignments to pass the course.

Attendance Policy:

All students are required to be on time and in attendance for each and every class. Two (2) absences will lower a final grade by 1/3 a letter. Three (3) absences will lower a final grade by one letter. Four (4) absences will result in a failing grade ("E") for the course.

Disability Services:

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. **SLDS contact information:** slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>

Student Safety

OSU provides a Student Safety Escort Service if you are working late at night on campus and would like an escort to your car or campus apartment. Information is here: http://www.ps.ohio-state.edu/sss/escort_info/ Their phone number is 614-292-3322.

Course Calendar:

Week 1

Course introduction and syllabus review

Weekly Topic: Data Visualization: What's Next?

- <https://medium.com/signal-noise/data-visualisation-what-s-next-8a19d07e219e#rghmoh3vc>
- egocentric data visualization 'show me that you know me'.
- Using Typography to Expand the Design Space of Data Visualization
 - <http://www.sciencedirect.com/science/article/pii/S2405872616300107>

Reading: *Visualize This* chapter 1-2, Software Installation and Intro to Workshop

Week 2

Weekly Topic: How Humans Interpret Graphics Kennedy Elliott

- *Graphical Perception: Theory, Experimentation and Application to the Development of Graphical Methods*, by William S. Cleveland and Robert McGill, Journal of the American Statistical Association
- *Grammar of Graphics* by Leland Wilkinson
- 39 studies about human perception in 30 minutes
 - <https://medium.com/@kennelliott/39-studies-about-human-perception-in-30-minutes-4728f9e31a73#.w0uue843y>
- The Data Visualization Checklist, by Ann K. Emery
 - <http://annkemery.com/checklist/>
- <https://hbr.org/2016/06/visualizations-that-really-work>

Reading: *Data Points* chapter 1 "Understanding Data"

Blog Post: #1 Due

Week 3

Weekly Topic: Storytelling with Data

- Strategies for Effective Storytelling
- Repetition, narrative flow, spoken and written narratives, communication tactics
- The role of stories in data storytelling by Shawn Callahan
 - <http://www.anecdote.com/2016/08/stories-data-storytelling/>

Reading: *Visualize This* chapter 3 "Choosing Tools to Visualize Data" & *Visualize This* chapter 4 "Visualizing Patterns Over Time"

Blog Post: #2 Due

Lab Visit #1

Week 4

Weekly Topic: Data Collection

- Scraping Data from the web
- The Ethics of Scraping
- Crowdsourcing data
- Missing Data Sets by Mimi Onuoha <http://mimionuoha.com/thoughts/>

Reading: *Data Points* chapter 2 "Visualization: The Medium", *Visualize This* chapter 5 "Visualizing Proportions"

Blog Post: #3 Due

Week 5

Mini-Presentation #1 Due

Blog Post: #6 Due

Week 6

Weekly Topic: Data Visualization for Products Shirley Wu

- What I Learned Recreating One Chart Using 24 Tools by [Lisa Charlotte Rost](#)
 - <https://source.opennews.org/en-US/articles/what-i-learned-recreating-one-chart-using-24-tools/>

Reading: *Visualize This* chapter 6 “Visualizing Relationships” and *Data Points* chapter 4 “Exploring Data Visually”

Blog Post: #4 Due

Lab Visit #2

Week 7

Weekly Topic: Data and Natural Language Generation

Reading: *Visualize This* chapter 7 “Spotting Differences”

Blog Post: #5 Due

Week 8

Weekly Topic: DataViz for Social Good

- Responsible Data Forum
- Human Rights and Data Analysis Group <https://hrdag.org/>
- <http://blogs.microsoft.com/newyork/2016/01/20/dataviz-for-good-how-to-ethically-communicate-data-in-a-visual-manner-rdfviz/>

Reading: *Data Points* chapter 5 “Visualizing with Clarity”

Blog Post: #7 Due

Week 9

Weekly Topic: Designing Virtual Reality Data Visualizations

- A Virtual Reality Guided Tour of 21 years of Nasdaq <http://graphics.wsj.com/3d-nasdaq/> by Ana Asnes Becker
- Brian Chirls,
 - <http://www.pbs.org/pov/blog/author/bchirls/>
 - <http://www.pbs.org/pov/blog/povdocs/2015/01/pov-digital-storytelling-tools-using-virtual-reality-for-data-visualization/>

Reading: *Data Points* chapter 6 “Designing for an Audience”, *Visualize This* chapter 8 “Visualizing Spatial Relationships” *Visualize This* chapter 9 “Designing with a Purpose”

Blog Post: #8 Due

Lab Visit #3

Week 10

Mini-Presentation #2 Due

Blog Post: #9 Due

Week 11

Weekly Topic: Animation and Interactivity in Data Visualization

- Reactive Building Blocks Arvind Satyanarayan
- Animation, Pacing and Exposition in Data Visualization by Tony Hang Shing Chu
- On the Trump Emoto-Coaster <http://emotions.periscopic.com/>

Reading: *Data Points* chapter 7 “Where to Go from Here”

Blog Post: #10 Due

Week 12

Weekly Topic: Immersive, more intuitive and richer data-driven user experiences

- How the Recession Reshaped the Economy, in 255 Charts
- https://www.nytimes.com/interactive/2014/06/05/upshot/how-the-recession-reshaped-the-economy-in-255-charts.html?_r=1

Week 13

Weekly Topic: Information Visualization Research Projects that Would Benefit Practitioners

- <https://www.perceptualedge.com/blog/?p=2258>

Prototyping Work Sessions

Week 14

Prototyping Work Sessions

Finals

Final presentations and course wrap-up

From: Harvey, Rebecca
Sent: Monday, April 17, 2017 8:59 AM
To: Palazzi, Maria
Subject: Re: Concurrence Request - ACCAD 5150

Maria –

I have reviewed with interest the syllabus for the proposed course *ACCAD 5150 Emerging Trends in Data Visualization*.

It is an appropriate course for the Data Visualization Specialization in the Data Analytics Major. Thank you for including the Department of Art in this concurrence request.

Best,

RH

Rebecca Harvey

Chair, Professor
The Ohio State University
Department of Art
College of Arts and Sciences
258 Hopkins Hall | 128 North Oval Mall Columbus, OH 43210-1319
614.292.5072 Office | 614.292.1674 Fax
harvey.113@osu.edu art@osu.com

From: Hutzel, Karen E.
Sent: Monday, April 17, 2017 3:31 PM
To: Palazzi, Maria
Subject: Re: Concurrence Request - ACCAD 5150

Maria,

We concur! Looks good, too.



Karen



Karen Hutzel, PhD Associate Professor & Chair
Department of Arts Administration, Education & Policy
231E Sullivant Hall | 1813 North High Street | Columbus, OH 43210
614-292-7183 Main Office | 614-688-4483 Fax

Senior Co-Editor, *Journal of Cultural Research in Art Education*
World Councilor, *International Society for Education through Art*

From: "Palazzi, Maria" <palazzi.1@osu.edu>

Date: Sunday, April 16, 2017 at 8:46 PM

To: "Harvey, Rebecca" <harvey.113@osu.edu>, "Florman, Lisa" <florman.4@osu.edu>, Karen Hutzel <hutzel.4@osu.edu>

Subject: Concurrence Request - ACCAD 5150

Dear Rebecca, Lisa and Karen,

I am requesting concurrence for a new course, ACCAD 5150 Emerging Trends in Data Visualization which will be one of the courses for the 15 credit Data Visualization Specialization to the Data Analytics Major.

You may remember that you recently provided concurrence of the Specialization, which is a collaborative effort between CSE (Dr. Machiraju), Design (Dr. Beecher) and ACCAD (myself).

I have attached the syllabus for the proposed course for your review and the concurrence sheet for your convenience. If you prefer to just send an email indicating concurrence - that is fine too.

The 15 day waiting period for this request for concurrence ends 05/1/2017. It would be great to hear from you by then, after which time I will proceed with submission and assume your concurrence.

Thanks,

Maria