

## Term Information

Effective Term Spring 2024  
[Previous Value](#) Spring 2018

## Course Change Information

### What change is being proposed? (If more than one, what changes are being proposed?)

ACCAD is requesting permanent DL approval for our course ACCAD 5150, Emerging Trends in Data Visualization. We have included a DL version of the syllabus for the course that conforms to the requirements for distance courses. To construct the syllabus, we have worked with ODEE in formulation of the online version in AU22. We have reviewed the syllabus with Jeremie Smith in ASC ODE and addressed each of their requested revisions.

### What is the rationale for the proposed change(s)?

We are seeking permanent DL approval of this course so that ACCAD has the option to either teach the course in-person (as currently approved) or online whenever ACCAD thinks it is preferable or necessary.

### What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

There should not be programmatic changes/ implications with this proposal.

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

## 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 existing, new, and emerging approaches to data visualization, topics, and trends in visualization research and their applications. Students will research, analyze, write about, explore, and make data visualizations. This class will be comprised of readings, discussions, conversations with visualization creators, hands-on visualization prototyping activities.
<a href="#">Previous Value</a>	<i>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.</i>
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?	Yes
Is any section of the course offered	100% at a distance
<a href="#">Previous Value</a>	No
Grading Basis	Letter Grade
Repeatable	No

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Course Components	Laboratory, Lecture, Seminar
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 No

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code	50.0499
Subsidy Level	Masters Course
<i>Previous Value</i>	<i>Doctoral Course</i>
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

- Recognize and understand the fundamental concepts of data visualization.
- Examine and evaluate emerging approaches to visualization.
- Describe the trends of visualization research and practice.
- Communicate and collaborate with your peers
- *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;*

*Previous Value*

Content Topic List

- Intro to Data Visualization
- Basic notion of graphic representation. Design principles and graphic elements
- What comes first Visualization or Analysis
- Data Viz in Arts practices
- Data Viz and VR
- Emerging Trends VS Current Practice

**COURSE CHANGE REQUEST**  
5150 - Status: PENDING

Last Updated: Vankeerbergen,Bernadette  
Chantal  
09/21/2023

**Previous Value**

- *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\_VizSyll\_2018.pdf: 2018 approved syllabus  
*(Syllabus. Owner: Smith,Mary Elaine)*
- ACCAD5150DLRequestFeb2023.pdf: Interim Director cover letter  
*(Cover Letter. Owner: Smith,Mary Elaine)*
- ConcurrenceFor5150EmergTrends.pdf: previous concurrence  
*(Concurrence. Owner: Smith,Mary Elaine)*
- ACCAD\_5150\_Huardupdated\_SP2023.pdf: Updated Syllabus 092023  
*(Syllabus. Owner: Smith,Mary Elaine)*
- ACCAD 5150 asc-distance-approval-cover-sheet.pdf: Distance Ed Cover Letter  
*(Cover Letter. Owner: Smith,Mary Elaine)*

**Comments**

- Please see Panel feedback email sent 04/06/2023. *(by Hilty,Michael on 04/06/2023 10:27 AM)*
- Concurrence was received in 2018. We are requesting this course include a DL component as needed. The target audience is upper level undergrads and graduate students. This course is part of the Visualization Specialization in the BS Data Analytics program. *(by Smith,Mary Elaine on 03/06/2023 09:52 AM)*

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Smith,Mary Elaine	03/06/2023 10:00 AM	Submitted for Approval
Approved	Palazzi,Maria	03/07/2023 09:50 AM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	03/07/2023 11:19 AM	College Approval
Revision Requested	Hilty,Michael	04/06/2023 10:27 AM	ASCCAO Approval
Submitted	Smith,Mary Elaine	09/20/2023 04:34 PM	Submitted for Approval
Approved	Palazzi,Maria	09/21/2023 10:04 AM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	09/21/2023 10:07 AM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Neff,Jennifer Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	09/21/2023 10:07 AM	ASCCAO Approval



February 23, 2023

Dear ASC Curriculum Committee,

ACCAD is requesting permanent DL approval for our course ACCAD 5150 *Emerging Trends in Data Visualization*.

We have included a DL version of the syllabus for the course that conforms to the requirements for distance courses.

To construct the syllabus, we have worked with ODEE in formulation of the online version in AU22. We have reviewed the syllabus with Jeremie Smith in ASC ODE and addressed each of their requested revisions.

We are seeking permanent DL approval of this course so that ACCAD has the option to either teach the course in-person (as currently approved) or online whenever ACCAD thinks it is preferable or necessary.

Sincerely,

Yana Hashamova, Ph.D.  
Arts and Sciences Distinguished Professor of Slavic Studies  
Interim Director, Advanced Computing Center for the Arts and Design



# SYLLABUS

# ACCAD 5150

Emerging Trends in Data Visualization

Spring 2023 (full-term)

3 credit hours

Online Wednesday from 4:00 to 5:20

## COURSE OVERVIEW

### Instructor

Instructor: Marie-Josée Huard

Email address: [huard.6@osu.edu](mailto:huard.6@osu.edu)

Phone number:

Office hours: Monday 7-8 pm Friday 7-8 am

### Prerequisites

None

### Course description

This course enables students to explore existing, new, and emerging approaches to data visualization, topics, and trends in visualization research and their applications. Students will research, analyze, write about, explore, and make data visualizations. This class will be comprised of readings, discussions, conversations with visualization creators, and hands-on visualization prototyping activities

### Course learning outcomes

By the end of this course, students should successfully be able to:

- *Recognize and understand the fundamental concepts of data visualization.*
- *Examine and evaluate emerging approaches to visualization.*
- *Describe the trends of visualization research and practice.*

- *Communicate and collaborate with your peers to provide useful feedback*
- *Participate in discussions on visualization research topics.*
- *Reflect on emerging trends and their influence on current practice*
- *Articulate and analyze the factors that are prompting changes in visualization.*
- *Develop prototypes and future visualization possibilities based on your assessment of new models of data visualization.*

## HOW THIS ONLINE COURSE WORKS

**Mode of delivery:** This course is 100% online. There is one synchronous online session each Wednesday from 4:00 to 5:20, you are expected to attend.

**Pace of online activities:** This course is divided into **weekly modules** that you can consult at any time. Each synchronous session requires 60-90 minutes of preparation (mostly reading or short videos) that we suggest you do from Monday to Tuesday and is followed by a synchronous session every Wednesday from 4:00 to 5:20.

Synchronous session includes learning activities, discussions, and often seminars with experts in Data Visualization.

Following the Synchronous session, students will participate in online discussions to reflect on readings and activities or complete assignments. These discussions or assignments should take about 6 hours to complete satisfactorily.

You have till Sunday to do the required assignments. Students are expected to keep pace with weekly deadlines but may also schedule their efforts freely within that time frame.

**Credit hours and work expectations:** This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 9 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to homework (reading and assignment preparation, for example) to receive a grade of (C) average.

**Attendance and participation requirements: Be prepared, attend, and participate in weekly synchronous session is required. Each synchronous session is built to put into practice what you read about and prepare you for the homework to deliver.**

This course rely on synchronous seminars with expert, discussion, and project review to support you meeting the learning objectives of this course.

Activities include:

- **Quiz\*:** to ensure you are familiar with the terminology and definitions used in communications about data visualization. The quiz will be available on Carmen during the first week of class till its due date. There are no time limits and you can re-take it up to 3 times.

- **Reading:** to discover the landscape of data visualization to learn about new developments in visualization, and to contextualize data visualization research writings through discussion as a way of better understanding where the field is heading.
- **Conversations:** You will have the opportunity to attend seminar-like synchronous sessions with various experts who are engaged with various and discipline-specific forms of data visualization to organize, understand, and enhance their work.
- **Project review:** You will have the opportunity to give constructive feedback to practice assessment and evaluation of good practice in data visualization as much as articulating your point of view. On the other end of the review, you will receive feedback to practice planning for improvement.
- **Discussion\*:** You will hone your skills in discussion and analytical writing about data visualization by preparing responses to readings, prototyping, and interviews with data visualization experts.
- **Projects:**
  - a. **Prototyping projects\*:** Based on your experiences with visualization tools and techniques, you will generate visualization prototypes individually and use the design thinking process to find inspiration. Prototypes will be presented and discussed in critique format collaboratively in the class.
  - b. **Final Project submission\*:** You will include reflections on how your new knowledge (acquired in previous modules), your specific audience, and context influenced your design process and the resulting data visualization.

*\*Graded activities*

## COURSE MATERIALS AND TECHNOLOGIES

### Textbooks

#### Required

- See Each Module Overview on Carmen

#### Recommended/optional

- See Each Module Overview on Carmen

# Course technology

## Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at [ocio.osu.edu/help/hours](https://ocio.osu.edu/help/hours), and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** [ocio.osu.edu/help](https://ocio.osu.edu/help)
- **Phone:** 614-688-4357(HELP)
- **Email:** [servicedesk@osu.edu](mailto:servicedesk@osu.edu)
- **TDD:** 614-688-8743

## Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen ([go.osu.edu/canvasstudent](https://go.osu.edu/canvasstudent))
- CarmenZoom virtual meetings ([go.osu.edu/zoom-meetings](https://go.osu.edu/zoom-meetings))
- Recording a slide presentation with audio narration ([go.osu.edu/video-assignment-guide](https://go.osu.edu/video-assignment-guide))
- Recording, editing, and uploading video ([go.osu.edu/video-assignment-guide](https://go.osu.edu/video-assignment-guide))

## Required equipment

- Any computer or device with a browser with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication
- Something for rapid sketching: whatever you are comfortable working with, you can use anything from your device to crayons and paper.

## Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at [go.osu.edu/office365help](https://go.osu.edu/office365help).
- Zoom: Please connect with SSN to avoid having to enter a password and enter the meeting automatically



- Miro: This free browsing-based application is free and user friendly, no previous experience is required.

## Carmen access

You will need to use BuckeyePass ([buckeyepass.osu.edu](http://buckeyepass.osu.edu)) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions ([go.osu.edu/add-device](http://go.osu.edu/add-device)).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application ([go.osu.edu/install-duo](http://go.osu.edu/install-duo)) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

# GRADING AND FACULTY RESPONSE

## How your grade is calculated

ASSIGNMENT CATEGORY	POINTS
Quiz	3
Discussion on reading and interviews 4 pts x 8	32
Project prototypes/draft 5 pts x 6	30
Project 1 (10 pts) project 2 (10 pts), and project 3 (15 pts)	35
<b>Total</b>	<b>100</b>

*See course schedule below for due dates.*

## Late assignments

Please refer to Carmen for due dates and hours. Late submissions without notice are subject to 1 point grade reduction for each 24h. Please contact the instructor in advance to arrange/find a solution for specific situations. Each assignment builds on the previous assignment's learning objectives, so it is very important you keep pace.

## Grading scale

93–100: A  
90–92.9: A-  
87–89.9: B+  
83–86.9: B  
80–82.9: B-  
77–79.9: C+  
73–76.9: C  
70–72.9: C-  
67–69.9: D+  
60–66.9: D  
Below 60: E

## Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expect feedback within **10 days**.
- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**.
- **Discussion board:** I will check and reply to messages in the discussion boards every **24 hours on school days**.

## OTHER COURSE POLICIES

### Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** Remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine on discussion boards.

- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online, especially in written discussions.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources like images, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

## Policies for this online course

- **Written assignments:** Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow APA style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in—but no one else should revise or rewrite your work.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review:** The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that **comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time**

## Academic integrity policy

See **Descriptions of major course assignments**, above, for my specific guidelines about collaboration and academic integrity in the context of this online class.

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/>.

**If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct.** If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page ([go.osu.edu/coam](http://go.osu.edu/coam))
- Ten Suggestions for Preserving Academic Integrity ([go.osu.edu/ten-suggestions](http://go.osu.edu/ten-suggestions))

## **Student Services and Advising**

University Student Services can be accessed through BuckeyeLink. More information is available here:  
<https://contactbuckeyelink.osu.edu/>

**FOR UNDERGRAD COURSES:** Advising resources for students are available here:  
<http://advising.osu.edu>

**FOR GRADUATE COURSES:** List your department's advising resources here.

## **Copyright for instructional materials**

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

## **Statement on Title IX**

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at [titleix@osu.edu](mailto:titleix@osu.edu)

## Commitment to a diverse and inclusive learning environment

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

## Land Acknowledgement

We would like to acknowledge the land that The Ohio State University occupies is the ancestral and contemporary territory of the Shawnee, Potawatomi, Delaware, Miami, Peoria, Seneca, Wyandotte, Ojibwe and Cherokee peoples. Specifically, the university resides on land ceded in the 1795 Treaty of Greeneville and the forced removal of tribes through the Indian Removal Act of 1830. I/We want to honor the resiliency of these tribal nations and recognize the historical contexts that has and continues to affect the Indigenous peoples of this land.

More information on OSU's land acknowledgement can be found here:

<https://mcc.osu.edu/about-us/land-acknowledgement>

## Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](https://ccs.osu.edu) or calling **614-292-5766**. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at **614-292-5766** and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

# ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

## Requesting accommodations

The University strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. 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](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12<sup>th</sup> Avenue.

## Accessibility of course technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- Canvas accessibility ([go.osu.edu/canvas-accessibility](http://go.osu.edu/canvas-accessibility))
- Streaming audio and video
- CarmenZoom accessibility ([go.osu.edu/zoom-accessibility](http://go.osu.edu/zoom-accessibility))
- Collaborative course tools

## COURSE SCHEDULE

Refer to the Carmen course for up-to-date assignment due dates.

Week	Dates	Readings before class	Topics and activity of synchronous session	Deadline
1	01/09-01/15	Readings on the emergence of Data Viz	Intro to Data Visualization	Discussion Data Viz (4pts)
2	01/16-01/22	Readings on terminology and graphic representation principles	Basic notion of graphic representation. Design principles and graphic elements	Quiz on terminology (3 pts) Provide dataset for P1 (5pts)
3	01/23-01/29	Reading on critic "etiquette" Provide project 1 1 <sup>st</sup> draft	Project 1 : 1 <sup>st</sup> draft review	Discussion on Feedback (4 pts) Provide Design Process for P1 (5pts)
4	01/30-02/05	Provide your most advance draft of Project 1	Project 1 : review	project 1 (5pts)
5	02/06-02/12	Provide Project 1 for discussion Speculative visualization	Project 1 review Project 2 launch	Plan for P2 (5pt)
6	02/13-02/19	Research on George Legrady's work	George Legrady – What comes first Visualization or Analysis?	Discussion (4 pts)
7	02/20-02/26	Reading provided by Rebecca Ruige - Prepare questions	Rebecca Ruige – Data Viz in Arts practices	Discussion (4 pts)
8	02/27-03/05	Provide Project 2 draft for discussion	Analysis, Critic and review etiquette	Discussion on feedback and improvement for P2 (5pts)
9	03/06-03/12	Reading provided by Yoon Prepare questions	Yoon Chung Han Data Viz in Arts	Project 2 (10 pts) Discussion (4 pts)
SPRING BREAK				
10	03/20-03/26	Reading on VR and DV	Graham Wakefield + Haru Ji Data Viz and VR	Discussion (4 pts). Plan for P3 (5pt)
11	03/27-04-02	Prep a summary/ take away of seminars	Emerging trends VS current practice	Discussion (4 pts)
12	04/03-04/09	Provide draft of final project	Review of final project	Discussion on feedback and improvement (4pts) 1 <sup>st</sup> draft P3 (5 pts)

<b>Week</b>	<b>Dates</b>	<b>Readings before class</b>	<b>Topics and activity of synchronous session</b>	<b>Deadline</b>
<b>13</b>	04/10-04/16	Reading on ethic and Data Vis	Manipulation of data and ethical considerations	Discussion (4 pts)
<b>14</b>	04/17-04/24	Provide draft of final project	Review of final project	Project 3 (15 pts)



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 2<sup>nd</sup> 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](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12<sup>th</sup> 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/](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](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

# Distance Approval Cover Sheet

## For Permanent DL/DH Approval | College of Arts and Sciences

Course Number and Title:

### Carmen Use

When building your course, we recommend using the [ASC Distance Learning Course Template](#) for CarmenCanvas. For more on use of [Carmen: Common Sense Best Practices](#).

A Carmen site will be created for the course, including a syllabus and gradebook at minimum.

If no, why not?

### Syllabus

Proposed syllabus uses the ASC distance learning syllabus template, includes boilerplate language where required, as well as a clear description of the technical and academic support services offered, and how learners can obtain them.

Syllabus is consistent and is easy to understand from the student perspective.

Syllabus includes a schedule with dates and/or a description of what constitutes the beginning and end of a week or module.

If there are required synchronous sessions, the syllabus clearly states when they will happen and how to access them.

Additional comments (optional):

### Instructor Presence

For more on instructor presence: [About Online Instructor Presence](#).

Students should have opportunities for regular and substantive academic interactions with the course instructor. Some ways to achieve this objective:

Regular instructor communications with the class via announcements or weekly check-ins.

Instructional content, such as video, audio, or interactive lessons, that is visibly created or mediated by the instructor.



- Regular participation in class discussion, such as in Carmen discussions or synchronous sessions.
- Regular opportunities for students to receive personal instructor feedback on assignments.

Please comment on this dimension of the proposed course (or select/explain methods above):

## **Delivery Well-Suited to DL/DH Environment**

*Technology questions adapted from the [Quality Matters](#) rubric. For information about Ohio State learning technologies: [Toolsets](#).*

- The tools used in the course support the learning outcomes and competencies.
- Course tools promote learner engagement and active learning.
- Technologies required in the course are current and readily obtainable.
- Links are provided to privacy policies for all external tools required in the course.

Additional technology comments (optional):

Which components of this course are planned for synchronous delivery and which for asynchronous delivery? (For DH, address what is planned for in-person meetings as well.)

If you believe further explanation would be helpful, please comment on how course activities have been adjusted for distance learning (optional):

## Workload Estimation

For more information about calculating online instruction time: [ODEE Credit Hour Estimation](#).

- Course credit hours align with estimated average weekly time to complete the course successfully.
- Course includes direct (equivalent of “in-class”) and indirect (equivalent of “out-of-class”) instruction at a ratio of about 1:2.

Provide a brief outline of a typical course week, categorizing course activities and estimating the approximate time to complete them or participate:

- In the case of course delivery change requests, the course demonstrates comparable rigor in meeting course learning outcomes.

## Accessibility

For more information or a further conversation, contact the [accessibility coordinator](#) for the College of Arts and Sciences. For tools and training on accessibility: [Digital Accessibility Services](#).

- Instructor(s) teaching the course will have taken Digital Accessibility training (starting in 2022) and will ensure all course materials and activities meet requirements for diverse learners, including alternate means of accessing course materials when appropriate.
- Information is provided about the accessibility of all technologies required in the course. All third-party tools (tools without campus-wide license agreements) have their accessibility statements included.

Description of any anticipated accommodation requests and how they have been/will be addressed.

Additional comments (optional):

## Academic Integrity

For more information: [Academic Integrity](#).

- The course syllabus includes online-specific policies about academic integrity, including specific parameters for each major assignment:
- Assignments are designed to deter cheating and plagiarism and/or course technologies such as online proctoring or plagiarism check or other strategies are in place to deter cheating.

Additional comments (optional):

## Frequent, Varied Assignments/Assessments

For more information: [Designing Assessments for Students](#).

Student success in online courses is maximized when there are frequent, varied learning activities. Possible approaches:

- Opportunities for students to receive course information through a variety of different sources, including indirect sources, such as textbooks and lectures, and direct sources, such as scholarly resources and field observation.
- Variety of assignment formats to provide students with multiple means of demonstrating learning.
- Opportunities for students to apply course knowledge and skills to authentic, real-world tasks in assignments.

Comment briefly on the frequency and variety of assignment types and assessment approaches used in this course (or select methods above):

## Community Building

For more information: [Student Interaction Online](#).

Students engage more fully in courses when they have an opportunity to interact with their peers and feel they are part of a community of learners. Possible approaches:

- Opportunities for students to interact academically with classmates through regular class discussion or group assignments.
- Opportunities for students to interact socially with classmates, such as through video conference sessions or a course Q&A forum.
- Attention is paid to other ways to minimize transactional distance (psychological and communicative gaps between students and their peers, instructor, course content, and institution).

Please comment on this dimension of the proposed course (or select methods above):

## Transparency and Metacognitive Explanations

For more information: [Supporting Student Learning](#).

Students have successful, meaningful experiences when they understand how the components of a course connect together, when they have guidance on how to study, and when they are encouraged to take ownership of their learning. Possible approaches:

- Instructor explanations about the learning goals and overall design or organization of the course.
- Context or rationale to explain the purpose and relevance of major tasks and assignments.

- Guidance or resources for ancillary skills necessary to complete assignments, such as conducting library research or using technology tools.
- Opportunities for students to take ownership or leadership in their learning, such as by choosing topics of interest for an assignment or leading a group discussion or meeting.
- Opportunities for students to reflect on their learning process, including their goals, study strategies, and progress.
- Opportunities for students to provide feedback on the course.

Please comment on this dimension of the proposed course (or select methods above):

## **Additional Considerations**

Comment on any other aspects of the online delivery not addressed above (optional):

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Syllabus and cover sheet reviewed by \_\_\_\_\_ on \_\_\_\_\_

Reviewer Comments:

Additional resources and examples can be found on [ASC's Office of Distance Education](#) website.

I have completed and signed off on the preliminary distance learning review for the **ACCAD 5150 Emerging Trends in Data Visualization** proposal (see signed Cover Sheet attached). This syllabus includes all required syllabus elements and provides an overview of the course expectations.

I have a few recommendations that I think will improve the course design, add clarity to the syllabus, and support a successful review by the faculty curriculum committee:

- While I have no doubts that this course plan includes 3 hours per week of direct instruction, I anticipate the lack of specificity about this may slow down the online course approval process. I recommend revisiting the “Workload Estimation” section of the Distance Approval Cover Sheet and provide an estimated list of the amount of time students are expected to be working on each aspect of the course. This should clarify what the direct instruction is in the course plan that augments the 1 day a week of synchronous sessions. This summary of workload estimation would also greatly improve the “How this Online Course Works” section of the syllabus and clarify for students the rhythm and pacing of the course. We have been compiling a collection of example syllabi on our website you may find useful: <https://ascode.osu.edu/resources/asc-online-course-syllabi-examples>. The syllabus for the English 3264 course, in particular, provides a clear (but not onerous) summary of workload estimation in the aforementioned syllabus section.
- I recommend adding detailed assignment descriptions for each assignment category listed on page 5 of the syllabus to clarify the expectations of students in the class. Additionally, the ASC faculty review panels request that specific guidelines about collaboration and academic integrity be provided for each assignment category in online course syllabi.
- How will the terminology quiz be administered? If this will not take place during the weekly synchronous session, the specific plan for administering this, including how long it will be open in Carmen and if there will be a time limit for completing this quiz once started, should be added to the assignment description.

The ASC Office of Distance Education strives to be a valuable resource to instructors and departments in the College of Arts and Sciences. In addition to managing the [DL course review](#) process, [hosting ASC Teaching Forums](#), and developing an ever-expanding catalog of [instructor support resources](#), we also provide one-on-one instructional design consultation to ASC instructors interested in redesigning any aspect of their online course. If your department or any of your individual instructors wish to [meet with one of our instructional designers](#) to discuss how we can provide advice, assistance, and support, please do let me know.

Kindly,

Jeremie Smith  
Distance Education Coordinator  
The Ohio State University  
ASC Office of Distance Education

**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](mailto:harvey.113@osu.edu) [art@osu.com](mailto: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