



IUPUI

## SCHOOL OF INFORMATICS AND COMPUTING

DEPARTMENT OF LIBRARY  
AND INFORMATION SCIENCE  
Indiana University–Purdue University  
Indianapolis

### LIS S201

#### Foundations of Data Studies

*Course Syllabus - Spring 2018*

<b>Class Meeting:</b>	Online
<b>Meeting time:</b>	Asynchronous
<b>Meeting Location:</b>	Online Via Canvas <a href="https://iu.instructure.com/courses/1702565">https://iu.instructure.com/courses/1702565</a>
<b>Instructor:</b>	Angela P. Murillo, Ph.D.
<b>Office:</b>	535 W. Michigan Street, IT 557
<b>Office Hours:</b>	Mondays, 9:00–10 am
<b>Zoom Meeting Room:</b>	<a href="https://iu.zoom.us/j/8945580761">https://iu.zoom.us/j/8945580761</a>
<b>Email:</b>	apmurill@iu.edu
<b>Office Phone:</b>	317-278-6311

#### **COURSE DESCRIPTION**

##### **OFFICIAL CATALOG DESCRIPTION:**

This class introduces digital literacies, focusing on data and information literacy in the media, civic engagement, business, informatics, and data science. Students explore the production of data; their roles as data creators and consumers; and the effects of data practices on society. Students apply their acquired skills in real-world situations.

##### **EXTENDED COURSE DESCRIPTION:**

This course emphasizes the value of data in society and provides students the opportunity to learn basic data concepts and skills. Students will gain an understanding of key factors for data studies including data sources, data ethics, data evaluation, data manipulation, and data visualization. Additionally, students will gain valuable hands-on experience working with data.

This course is a required course for the Data Studies Minor curriculum and provides students the basic knowledge they must acquire to be prepared for the more specialized and elective courses offered in this program.

##### **PREREQUISITES**

None

**REQUIRED TEXTS:**

- Herzog, D. (2015). *Data literacy: A user's guide*. SAGE Publications: Los Angeles, CA.
- Evergreen, S. (2017). *Effective data visualization: The right chart for the right data*. SAGE Publications: Los Angeles, CA.
- Data Journalism Handbook: <http://datajournalismhandbook.org/1.0/en/index.html>
- Additional readings as assigned

**EQUIPMENT NEEDED:****LAPTOP**

A reliable laptop computer running Windows, Mac OS, or Linux operating system. Please visit <http://informatics.iupui.edu/technology/laptop> for information on the Laptop Initiative for Informatics majors.

For PC users, you need to have the most recent version of Edge, Internet Explorer, Firefox, or Chrome. For Mac users, you need to have the most recent version of Safari or the most recent version of either Firefox or Chrome.

To successfully complete this course, students must:

- Have adequate computing skills, including but not limited to the use of Microsoft Office suite or equivalent to process, save, and retrieve documents.
- Learn how to submit your assignments using Canvas.

**JING**

We will use Jing to create and share screencasts. Screencasts can capture our desktop and applications as we interact with them, which allows us to demonstrate our processes and technical questions in an easy way. Jing is available to download for free for both PC and Mac users at <https://www.techsmith.com/jing-tool.html>. Helpful tutorials for learning and using Jing are available at <https://www.techsmith.com/jing-tool.html>

**COURSE SITE:**

We have access to a Canvas course site (<https://canvas.iu.edu/>). I will use this site as a way to post updates, store documents, receive assignments, and to accommodate online learning activities. These activities will include weekly video lectures, reading assignments, discussions, and homework. It is your responsibility to review the course site multiple times a week.

**PRINCIPLES OF UNDERGRADUATE LEARNING (PUL):**

Learning outcomes are assessed in the following areas:

- |   |                   |
|---|-------------------|
| 1A. Core communication: written, oral and visual skills |                   |
| 1B. Core communication: quantitative skills             |                   |
| 1C. Core communication: information resources skills    | Major emphasis    |
| 2. Critical thinking                                    |                   |
| 3. Integration and application of knowledge             | Moderate emphasis |
| 4. Intellectual depth, breadth, and adaptiveness        | Some emphasis     |
| 5. Understanding society and culture                    |                   |

## 6. Values and ethics

**LEARNING OUTCOMES**

<b>Upon completion of this course students will</b>	<b>RBT</b>	<b>PUL</b>	<b>Assessment</b>
Recognize that data can have value and play a key role in society by providing opportunities to grow knowledge, to innovate, and to influence.	3	1C, 3, 4	A1, A4, Paper, Weekly Homework
Identify sources of data to evaluate news and other information.	1	1C, 4	A1, A4, Project, Weekly Homework
Analyze datasets in context to determine the reliability of the information including potential bias in data collection or representation.	4	1C, 3	A2, A3, Weekly Homework
Understand the ethical guidelines and implications for using, managing, and communicating data.	2	1C	A1, A4, Paper, Weekly Homework
Examine results produced in data analysis using data visualizations that are suitable for their purpose and targeted audience.	4	1C, 3	A4, Presentation, Weekly Homework

RBT: Revised Bloom's Taxonomy. PUL: Principles of Undergraduate Learning.

**LEARNING ASSESSMENTS**

This table provides a brief summary of the assignment names, due dates, and grade distribution. A fuller description for each assignment follows the table.

<b>Assignment</b>	<b>Week</b>	<b>Percentage</b>
Weekly Homework	Due weekly on Sunday from Week 2 – Week 16	35% (2.5 points each x 14)
Online Forum Participation	Week 1 (1/14) Week 2 (1/21) Week 9 (3/11) Week 15 (4/22)	10% (2.5 points each x 4)
Assignments	A1 - Week 4 (2/4) A2 – Week 5 (2/11) A3 – Week 6 (2/18) A4 – Week 12 (4/1)	20% Total (5 points each x 4)
Data Ethics Paper	Week 8 (3/4)	15% (15 points)
Visualization Presentation	Finals Week (5/4)	20% (20 points)
<b>Total</b>		<b>100% (100 points)</b>

**WEEKLY HOMEWORK (35%)**

Weekly homework serves as the primary tool for learning and assessment in this course, which is why it is collectively worth 35 percent of your total grade. This course requires you to deeply engage data concepts and practices, and these concepts and practices build on each other. It is imperative that you engage with each week's homework carefully and purposefully.

Structurally, the weekly home will be administered via Canvas and will be submitted through Canvas. Each Homework is worth 2.5 points each. Questions will range from simple true/false, short essays, and hands-on exercises.

**ONLINE DISCUSSION PARTICIPATION (10%)**

Throughout the semester you will be exploring topics and readings through online discussion forums. You are expected to participate in the discussion forum by offering ideas, including your own thoughts as well as pulling from sources outside of the class readings, and interacting with your fellow classmates through the discussion forum. To participate in the online discussion I will provide a prompt and/or question of what should be discussed.

**ASSIGNMENTS****ASSIGNMENT 1 (A1): EXPLORING ONLINE DATA SOURCES (5%)**

Throughout Chapters 1–4 of the textbook a number of online data sources have been described and discussed. Particularly, Chapters 3 and 4 describe multiple places where you can download data.

For this assignment, you will explore a data source and considerations of these data by the following:

- Find a data source you are interested in and download the data.
- Explore the data and consider what types of questions this data can answer, what is it useful for, who is its audience.
- Examine the data and determine the potential technical considerations. Describe both its positive qualities and negative qualities.

Submitted via Canvas.

**ASSIGNMENT 2 (A2): DATA INTEGRITY CHECK (5%)**

Download a copy of the 2014 disbursements files for the US Senate candidates in your state from the FEC Data Portal and run integrity checks learned in Chapter 6. Keep a data notebook. What problems do you see with the data? How would these problems impair your analysis?

Submitted via Canvas.

**ASSIGNMENT 3 (A3): OPEN REFINE LABORATORY (5%)**

This will be a laboratory activity to give you some experience with data manipulation.

Submitted via Canvas.

**ASSIGNMENT 4 (A4): DATA JOURNALISM CASE STUDIES (5%)**

You will be assigned a Case Study from the Data Journalism Handbook. You will provide a 2-3 page analysis of the case study focusing on audience, data, data ethics and privacy consideration, the story the data told. What could have provided a better story? Pros/cons of the case study.

Submitted via Canvas.

**DATA ETHICS PAPER (15%)**

Consider the following topics: data evaluation, data integrity, data manipulation, data privacy, and flawed assumptions of data. Write a 4–5-page paper exploring these topics. 3–5 citations, APA style guidelines.

Submitted via Canvas.

**VISUALIZATION PRESENTATIONS (20%)**

Throughout the course we have identified various places you can find data sources, additionally, we have investigated techniques for visualization of data. For this presentation, you will find a source of data you want to visualize and tell a story. You will present at least four visualizations of your data and discuss the pros and cons of the various visualization styles for telling your data story. Additionally, you will discuss the tool you used to create your visualizations. You will have 5 minutes in class to present your work and a 2-page write-up of your techniques.

Submitted via Canvas.

**EXPECTATIONS, GUIDELINES, AND POLICIES****Attendance:**

A basic requirement of this course is that you will participate in all on-line activities and conscientiously complete all required course activities and assignments. Given that this is an online course, there is no such thing as an absence, traditionally defined. However, I expect active, substantive, thoughtful participation in my online classes. This requires you to carve out time in your weekly schedule in order to give yourself the best chance at success.

Only the following are acceptable excuses for absences: death in the immediate family (e.g. mother, father, spouse, child, or sibling), hospitalization or serious illness; jury duty; court ordered summons; religious holiday; university/school coordinated athletic or scholastic activities; an unanticipated event that would cause attendance to result in substantial hardship to one's self or immediate family. Absences must be explained with the submission of appropriate documentation to the satisfaction of the instructor, who will decide whether missed work may be made up. Absences that do not satisfy the above criteria are considered unexcused. To protect your privacy, doctor's excuses should exclude the nature of the condition and focus instead on how the condition impacts your attendance and academic performance.

**Incomplete:**

The instructor may assign an Incomplete (I) grade only if at least 75% of the required coursework has been completed at passing quality and holding you to previously established time limits would result in unjust hardship to you. All unfinished work must be completed by the date set by the instructor. Left unchanged, an Incomplete automatically becomes an F after one year. <http://registrar.iupui.edu/incomp.html>

**Deliverables:**

You are responsible for completing each deliverable (e.g., assignment, Homework) by its deadline and submitting it by the specified method. Deadlines are outlined in the syllabus or in supplementary documents accessible through Canvas. In fairness to the instructor and students who completed their work on time, a grade on a deliverable shall be reduced 10%, if it is submitted late and a further 10% for each 24-hour period it is submitted after the deadline.

**CODE OF CONDUCT**

All students should aspire to the highest standards of academic integrity. Using another student's work on an assignment, cheating on a test, not quoting or citing references correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program.

All students are responsible for reading, understanding, and applying the *Code of Student Rights, Responsibilities and Conduct* and in particular the section on academic misconduct. Refer to *The Code > Responsibilities > Academic Misconduct* at <http://www.indiana.edu/~code/>. All students must also successfully complete the Indiana University Department of Education "How to Recognize Plagiarism" Tutorial and Test. <https://www.indiana.edu/~istd>. You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else's words (e.g., following the *Publication Manual of the American Psychological Association*). To detect plagiarism instructors apply a range of methods, including Turnitin.com. <http://www.ulib.iupui.edu/libinfo/turnitin>

**Academic Misconduct:**

1. **Cheating:** Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
  - a. A student must not use external assistance on any "in-class" or "take-home" examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, calculators, computers, and wireless communication devices.
  - b. A student must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare

work, without advanced authorization from the instructor to whom the work is being submitted.

- c. A student must not use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
  - d. A student must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student's individual work.
  - e. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
  - f. A student must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
  - g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor or program to whom the work is being submitted.
  - h. A student must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.
2. **Fabrication:** A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citation to the sources of information.
3. **Plagiarism:** Plagiarism is defined as presenting someone else's work, including the work of other students, as one's own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered "common knowledge" may differ from course to course.
- a. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
  - b. A student must give credit to the originality of others and acknowledge indebtedness whenever:
    1. directly quoting another person's actual words, whether oral or written;
    2. using another person's ideas, opinions, or theories;
    3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
    4. borrowing facts, statistics, or illustrative material; or
    5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment
4. **Interference:** A student must not steal, change, destroy, or impede another student's work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student's grade or the evaluation of academic performance. Impeding another student's work includes, but is not limited to, the theft, defacement,

or mutilation of resources so as to deprive others of the information they contain.

5. **Violation of Course Rules:** A student must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.
6. **Facilitating Academic Dishonesty:** A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor allow another student to use his or her work or resources to commit an act of misconduct.

## **OTHER POLICIES**

1. **Administrative withdrawal:** Students must participate in all class discussions and conscientiously complete all required course activities and/or assignments. If a student is unable to attend, participate in, or complete an assignment on time, the student must inform the instructor. If a student misses more than half of the required activities within the first 25% of the course without contacting the instructor, the student may be administratively withdrawn from this course. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal occurs after the full refund period, and a student who has been administratively withdrawn is ineligible for a tuition refund.
2. **Civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as ringing cell phones, engagement in private conversations, and other unrelated activities. Cell phones, media players, or any noisy devices should be turned off during a class. Texting, web surfing, and posting to social media are generally not permitted. Laptop use may be permitted if it is used for taking notes or conducting class activities. Students should check with the instructor about permissible devices in class. IUPUI nurtures and promotes “a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued” (IUPUI Strategic Initiative 9). IUPUI prohibits “discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or veteran status” (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers or other classroom visitors, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.
3. **Communication:** For classroom-based courses, the instructor or teaching assistant should respond to emails by the end of the next class or, for online courses, within two Indiana University working days, which excludes weekends and holidays. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone, or teleconferenced meetings, and announce periods of extended absence in advance.



4. **Counseling and Psychological Services (CAPS):** Students seeking counseling or other psychological services should contact the CAPS office at 274-2548 or [capsindy@iupui.edu](mailto:capsindy@iupui.edu). For more information visit <http://life.iupui.edu/caps/>.
5. **Course evaluations:** Course evaluations provide vital information for improving the quality of courses and programs. Students are urged to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing with the following exceptions: (a) The student has withdrawn from the course; (b) fewer than five students are enrolled in the section (in which case maintaining anonymity is difficult); and (c) the section is a laboratory that must be taken with a course having a different section number. Course evaluations are completed at <https://soic.iupui.edu/app/course-eval/>. Course evaluations are typically open from the eleventh week. Course evaluations are anonymous, which means that no one can view the name of the student completing the evaluation. In addition, no one can view the evaluation itself until after the instructor has submitted the final grades. In small sections, demographic information should be left blank, if it could be used to identify the student.
6. **Disabilities policy:** All qualified students enrolled in this course are entitled to reasonable accommodations for a disability. Notify the instructor during the first week of class of accommodations needed. Students requiring accommodations register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: [aes@iupui.edu](mailto:aes@iupui.edu), Tel. 317 274-3241). For more information visit <http://aes.iupui.edu>.
7. **Email:** Indiana University uses your IU email account as an official means of communication, and students should check it daily. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.
8. **Emergency preparedness:** Know what to do in an emergency so that you can protect yourself and others. For more information, visit the emergency management website at <http://protect.iu.edu/emergency>.
9. **IUPUI course policies:** A number of campus policies governing IUPUI courses may be found at the following link: [http://registrar.iupui.edu/course\\_policies.html](http://registrar.iupui.edu/course_policies.html)
10. **No class attendance without enrollment.** Only those who are officially enrolled in this course may attend class unless enrolled as an auditor or making up an Incomplete by prior arrangement with the instructor. This policy does not apply to those assisting a student with a documented disability, serving in an instructional role, or administrative personnel. <http://registrar.iupui.edu/official-enrollment-class-attendance.html> Children may *not* attend class with their parents, guardians, or childcare providers.
11. **Religious holidays:** Students seeking accommodation for religious observances must submit a request form to the course instructor by the end of the second week of the semester. For information visit <http://registrar.iupui.edu/religious.html>.

12. **Right to revise:** The instructor reserves the right to make changes to this syllabus as necessary and, in such an event, will notify students of the changes immediately.
13. **Sexual misconduct:** IU does not tolerate sexual harassment or violence. For more information and resources, visit <http://stopsexualviolence.iu.edu/>.
14. **Student advocate:** The Student Advocate assists students with personal, financial, and academic issues. The Student Advocate is in the Campus Center, Suite 350, and may also be contacted at 317 274-4431 or [studvoc@iupui.edu](mailto:studvoc@iupui.edu). For more information visit <http://studentaffairs.iupui.edu/advocate>.

## MISSION STATEMENT

The Mission of IUPUI is to provide for its constituents excellence in

- Teaching and Learning;
- Research, Scholarship, and Creative Activity; and
- Civic Engagement.

With each of these core activities characterized by

- Collaboration within and across disciplines and with the community;
- A commitment to ensuring diversity; and
- Pursuit of best practices.

IUPUI's mission is derived from and aligned with the principal components—Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices—of Indiana University's Strategic Directions Charter.

## STATEMENT OF VALUES

IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning. IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community, both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.

## GRADING SCALE

Grades will be assigned based on the [IUPUI grading scale](#).

<b>Letter Grade</b>	<b>Minimum %</b>	<b>Interpretation</b>
A+	98	Professional level work, showing highest level of achievement
A	93	Extraordinarily high achievement, quality of work; shows command of the subject matter
A-	90	Excellent and thorough knowledge of the subject matter
B+	87	Above average understanding of material and quality of work
B	83	Mastery and fulfillment of all course requirements; good, acceptable work
B-	80	Satisfactory quality of work
C+	77	Modestly acceptable performance and quality of work
C	73	Minimally acceptable performance and quality of work
C-	70	Unacceptable work (course must be repeated for credit)
D+	67	Unacceptable work (course must be repeated for credit)
D	63	Unacceptable work
D-	60	Unacceptable work
F	0	Unacceptable work

**SEMESTER STRUCTURE****Overview:**

This course covers 17 weeks with 14 of those weeks including substantive content. Week 1 will be introduction, Week 10 is Spring Break, and Week 17 is the Final Exam.

In Canvas, each week is referred to as a “Module”. Each module’s content will reveal when a new week begins. Make special note that each week begins on Monday at 12:00am and ends on the following Sunday at 11:59pm. Please see the Semester Grid Below

**Semester Grid**

<b>Week/Module</b>	<b>Start Date</b>	<b>End Date</b>
1	Monday, January 8 <sup>th</sup>	Sunday, January 14 <sup>th</sup>
2	Monday, January 15 <sup>th</sup>	Sunday, January 21 <sup>st</sup>
3	Monday, January 22 <sup>nd</sup>	Sunday, January 28 <sup>th</sup>
4	Monday, January 29 <sup>th</sup>	Sunday, February 4 <sup>th</sup>
5	Monday, February 5 <sup>th</sup>	Sunday, February 11 <sup>th</sup>
6	Monday, February 12 <sup>th</sup>	Sunday, February 18 <sup>th</sup>
7	Monday, February 19 <sup>th</sup>	Sunday, February 25 <sup>th</sup>
8	Monday, February 26 <sup>th</sup>	Sunday, March 4 <sup>th</sup>
9	Monday, March 5 <sup>th</sup>	Sunday, March 11 <sup>th</sup>
<b>10 – Spring Break</b>	<b>Monday, March 12<sup>th</sup></b>	<b>Sunday, March 18<sup>th</sup></b>
11	Monday, March 19 <sup>th</sup>	Sunday, March 25 <sup>th</sup>
12	Monday, March 26 <sup>th</sup>	Sunday, April 1 <sup>st</sup>
13	Monday, April 2 <sup>nd</sup>	Sunday, April 8 <sup>th</sup>
14	Monday, April 9 <sup>th</sup>	Sunday, April 15 <sup>th</sup>
15	Monday, April 16 <sup>th</sup>	Sunday, April 22 <sup>nd</sup>
16	Monday, April 23 <sup>rd</sup>	Sunday, April 29 <sup>th</sup>
17 – Final Exam Week	Final Exam Time: 8:00 – 10:00 am Final Projects Due 5/4 at 10am	