# INFO-I 501 Introduction to Informatics

<table>
<thead>
<tr>
<th>Course</th>
<th>Section 34961</th>
<th>3 credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Tuesdays at 3:00pm - 5:40pm</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Hine Hall, Room IP 231</td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>Leon Johnson, MS</td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td><a href="mailto:leonjohn@iu.edu">leonjohn@iu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Office Hours</td>
<td>Wednesdays at 10:00am - 12:00pm or by appointment</td>
<td></td>
</tr>
<tr>
<td>Prerequisites</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

*This section is primarily for students in the Applied Data Science MS program, although it is open to all graduate students in other programs as well.*

**Syllabus Guideline:** Students are responsible for familiarizing themselves with this syllabus. The instructor is responsible for being responsive to the diverse needs of the enrolled students and for making necessary modifications to this syllabus, which is to be treated as a living document.
Course Description

The course deals with the foundations of Informatics as an interdisciplinary field. We will study concepts such as Information, Technology, Knowledge, Modeling, and their impact on science and society. The course will also attempt to define and understand what computational and systems thinking can bring to science and society.

We will introduce broad topics in informatics with an emphasis on both the technical and social dimensions. The class serves as an introduction to computational thinking using Python. We will investigate informatics research methods, learn algorithms and tools for data analysis, and apply quantitative research methods for the course project.
Course Materials

Required Texts

All texts for this course are available publicly (at no cost) at the links provided. Yay! We will only ever use a portion of each, but you should feel free to peruse as much of these on your own as you like. All reading assignments, notes, and lecture slides will be posted on Canvas.

- *Introduction to Cultural Analytics & Python*
  - Author: Melanie Walsh
  - Year: 2021

- *Elements of Statistical Learning* (2nd edition)
  - Authors: Trevor Hastie, Robert Tibshirani, Jerome Friedman
  - Year: 2017

Excerpts from these books will account for roughly half of the reading for this course (mainly labs). The remainder will come from online articles, to be discussed in class.

Computer

Students are expected to have a computer which connects to the internet, and has the capacity for at least 2 GB of RAM.
Software (Python)

Python is a high-level, general-purpose programming language, and JupyterLab provides a notebook framework which makes coding for data science in Python much more user-friendly and streamlined. In this class, we will use both for labs and project work. I also recommend students use an Integrated Development Environment (IDE) such as Visual Studio Code (VS Code) to build Python files (modules) as they go.

During the first class meeting, we will set up our Python environments, and get started with JupyterLab. Students can feel free to review these setup instructions ahead of time, but I highly recommend waiting to do anything until we are together in the classroom.
Learning Outcomes

Principles of Graduate and Professional Learning (PGPL)

1. Knowledge and skills mastery *Major emphasis*
2. Critical thinking and good judgment *Moderate emphasis*
3. Effective communication *Some emphasis*
4. Ethical behavior

Core Competencies (CC)

The following competencies are covered in the course:

1. Gain familiarity with the foundational theories, concepts, and challenges in the diverse domain of informatics and its related fields (e.g., Cultural Heritage Informatics, Health Informatics, Social Informatics, Data Science).
2. Understand the perspectives of users and other stakeholders in informatics, including their needs, values, and preferences.
3. Use the problem analysis to identify and understand the space of possible solutions and generate designs that capture essential aspects of solutions and their components.
4. Demonstrate an ability to think about the analysis and design of information systems that are responsive to sociotechnical dimensions of their settings of use.
5. Demonstrate an ability to carry out the solution, assess its validity, and iteratively improve its design.
6. Understand and apply representations and models that are applicable to data, information, and knowledge.
7. For substantive problems related to scientific inquiry, problem-solving, and decision-making, analyze and critically evaluate solutions based on various informatics approaches.
8. Demonstrate communication and collaboration skills through teamwork and class discussions.
Program-level Learning Outcomes (PLO)

1. Analyze problems: Analyze, understand, abstract, and model a specific informatics problem in terms of its data, information, and knowledge components.

2. Produce solutions: Use the analysis to identify and understand the space of possible solutions and generate designs that capture essential aspects of solutions and their components.

3. Implement, evaluate, and refine: Carry out the solution (including obtaining necessary resources and managing projects), evaluate it, and iteratively improve it.

4. Apply, analyze, and create data structures, algorithms, programming, mathematics, and statistics.

5. Apply, analyze, and create technological approaches in the context of informatics problems.

6. Apply and evaluate methods of inquiry and criteria for selecting and using algorithms, techniques, and methods to solve substantive informatics problems.

Table of Learning Outcomes

Upon completion of this course, students will:

<table>
<thead>
<tr>
<th>RBT*</th>
<th>PGPL</th>
<th>PLO</th>
<th>CC</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Differentiate between the</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Subdomains of informatics</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>b. Qualitative and quantitative research</td>
<td></td>
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<tr>
<td>c. Theoretical concepts and epistemology of theories commonly used in informatics and its related fields.</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1, 8</td>
</tr>
</tbody>
</table>

| 2. Analyze critically and speak publicly about | | | | |
| a. The research performed by scholars in subdomains of informatics | 4 | 2, 3 | 1, 3 | 1, 6-8 | Class discussions, project presentation, and assignments |
| b. Your own projects executed in class | | | | |
| c. Data processing, analytics, and management issues. | | | | |

| 3. Investigate specific research questions regarding socio-technical issues. | 6 | 2, 1 | 2, 4 | 2, 4 | Class discussions, assignments, |
| 4. | Express informatics problems in Python by organizing, writing, and debugging medium-sized programs. | 6 | 2, 1 | 3, 6 | 3, 5, 7 | Python lab, project |
| 5. | Extract data that matches certain assumptions using Python, and apply quantitative analysis to test the hypothesis, test predictability, and validity. Use data structures, string manipulation using regular expressions, control statements, and file handling. | 6 | 2, 1 | 3, 5, 6 | 3, 7 | Python lab, project |
| 6. | Demonstrate informal understanding of computational complexity, the process of moving from problem statement to method for problem-solving using Python. | 3 | 1 | 1, 5 | 6, 7 | Python lab, project |
| 7. | Explain and implement machine learning - supervised learning, unsupervised learning techniques | 2 | 2 | 1, 5 | 5-7 | Python lab, project |
| 8. | Visualize results in Python. | 3 | - | 3, 4, 6 | 5-7 | Python lab, Project |

*RRevised Bloom’s Taxonomy (RBT): 1 = Remembering, 2 = Understanding, 3 = Applying, 4 = Analyzing, 5 = Executing, 6 = Creating.*
Course Structure

This is a discussion based class. The course consists of weekly reading assignments, in-class discussions on reading assignments, lab work, and a class project, all outlined below. The first portion of the semester is devoted to a broad overview of the informatics field, and the remainder of the course is devoted specifically to the informatics sub-field we call data science.

Discussions and Labs

Each week, students will be assigned a reading, and prior to coming to class, students will be expected to post their opinion of what they read (preferably containing at least one position or disagreement) on Canvas. For the first half of each weekly meeting, the instructor will guide the class in a discussion about what was read, where students will share their opinions, critiques, further analysis, etc.

The second half of each weekly meeting will be a Python lab. For the first portion of the semester, these labs will be focused on the fundamentals of the Python programming language, with the aim of giving students the tools they need to write simple code in Python. After a few weeks of this, we will incorporate our class discussions into the code we write, considering how code captures (or ignores) any points of interest which were discussed prior.

Each lab assignment involves the completion of a set of Python code exercises, with room for students to "embellish" with their own side-explorations using what is covered in the exercises. Students will have time in class to work on these labs, but they must be completed and submitted on Canvas prior to the next class meeting.

Project Description

The final project for this course will be the creation of an online (publicly available) data-driven Streamlit web app which serves a social or human-centered purpose. You will use data provided by the World Bank, and apply the methods and tools used during labs, while keeping in mind the topics of our class discussions. All pertinent project work will be tracked using Git, and shared on a public GitHub repository.

Data Selection

For this project, you will extract your data from the collection of World Bank Databases. The primary reason for this is that the data is very well documented, clean, and it is particularly well-suited for investigations into the human condition, which is our focus in this class.
Your dataset should meet the following criteria:

- There are at least 1,000 rows, at most 100,000 rows (you can sample from larger datasets).
- The data must be clean: each row represents a unique and separate observation, and each column a separate variable containing values of a single data type and consistent format.
- At least two columns are continuous. This includes time-based columns (e.g., year, date, etc.), and columns where decimal values make sense (e.g., price is continuous, count is not).
  - Data with columns bounded from above and below (e.g., movie ratings, percentages) should also include continuous variables which are unbounded (see above).
  - Continuous data with both positive and negative values are nice, but very rare.
- At least two columns are categorical (e.g., ethnicity, state, etc.).
- The documentation for the data should include: a detailed description of the dataset with the purpose behind its collection, explanations for each column, and a source.

Follow these instructions to collect your data:

1. Select a database from the [The World Bank Databases](#).
2. Select the "Variables" tab (on the upper left), and choose the data you're interested in.
3. Select the "Layout" tab, and click "Orientation". For "Series", select "Column" from the dropdown box. For all other factors, select "Row" from the dropdown box.
4. Click "Apply Changes" in the pop-up box.
5. Click the "Download options" in the upper right corner, and select "CSV".

**Project Milestones**

During the second half of the semester, students will start work on their projects. During these weeks, the lab portion of each class will pivot focus from Python fundamentals to incorporating what was learned that week into your project. There are three project milestones, and each must be submitted in Canvas as a URL to a .md or .ipynb file in your project's GitHub repository:

- **Proposal**: Due on Week 8, students are expected to submit a proposal, outlining the web app they plan to build, with an explanation for its use and value. Use this article to help you write your proposal.

- **Data Cleaned**: By Week 11, you should have already gathered all of your data, but by this point you'll have used the data manipulation techniques discussed in class to clean your data and prepare it for any analysis and modeling.
**Minimal Viable Product (MVP):** Due on Week 13, students must complete an MVP for their project. Think of this as an initial test of your project idea before any further adjustments resulting in the final version. It is a demonstration of the primary aspect(s) of your project plan, built with minimal effort. Your MVP should have four parts:

- **Demonstration.** Show something which best illustrates model performance thus far. This could be a visualization, simple web app, or a run-down of performance metrics.

- **Work Done.** Give a relatively short explanation of/for all the work completed thus far.

- **Conflicts.** List any issues you've run into, and what you plan to do to mitigate them.

- **Next steps.** Describe all that is left for you to finish your project.

**Final Project Presentation**

During the last week of the course, you will be expected to give a 5-minute presentation to the class. This will include both a walkthrough of the work you did, and a demonstration of the web application you built. Think about this presentation as one you might give a stakeholder who would benefit from the tool you built. In other words, if the class were a stakeholder, what could you show us that we might find useful, and why?

**Grading Rubric**

Along with the instructor, students will grade their peers using the below rubric. (On presentation day, I will provide the class with a link to a form to fill out for each student.) The **grade given by the instructor will be the final grade**, but average peer scores (and any feedback) will be shared as a point of reference.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity</td>
<td>How well ideas flow from one to the next in your presentation and in your web app. Does everything tell a clear and compelling story?</td>
<td>6</td>
</tr>
<tr>
<td>Breadth</td>
<td>The amount to which analysis incorporates multiple columns of data. A <em>cohesive</em> use of more columns will yield more points.</td>
<td>6</td>
</tr>
<tr>
<td>Depth</td>
<td>The amount to which analysis investigates or takes advantage of complexities within columns of data (e.g., trends and correlations).</td>
<td>6</td>
</tr>
<tr>
<td>Insight</td>
<td>How valuable is the insight you are providing? This includes accuracy in interpretation, model validation, and the usefulness of your results.</td>
<td>6</td>
</tr>
<tr>
<td>Elegance</td>
<td>How well are you using the tools discussed in class? Are you expertly using the most appropriate methods for each situation?</td>
<td>6</td>
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</tbody>
</table>

**Final Project Submission**

At the end of the course, you will submit a URL to your project's GitHub repository, as well as a link to your Streamlit app. The GitHub repository should contain all code used in your project, as well as a README file which should include the following:

- **Abstract.** Briefly summarize the main purpose of your project, and what came out of it.
- **Data Description.** Describe the data you extracted/cleaned from the World Bank.
- **Algorithm Description.** Outline the algorithm(s) driving your web app.
- **Tools Used.** List all the tools you used for this project, describing the purpose(s) of each.

Your final grade (from the rubric above) will be informed by both your presentation and your GitHub repository.

**Working with Others**

You are more than welcome and encouraged to collaborate with peers in the class, but only to share ideas and critique work. Similarly, (though I do not recommend it) you are free to use generative language models (such as ChatGPT) *only to spark ideas*. That is, if you feel the urge to copy/paste anything from such tools, you are using it incorrectly. All submitted work must be original, unique to you.
# Weekly Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Agenda</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| 1 | **Discussion:** Course Introduction  
a. Why Informatics, and what is it?  
b. Data, Information, Knowledge, Wisdom [link]  
**Lab:** Intro to the coding environment  
a. Walsh: *The Command Line* through *The Anatomy of a Python Script*  
b. Environments (skip "Docker"), Git and GitHub, and PEP-8 | Class discussion |
| 2 | **Discussion:** Health Informatics  
a. Health informatics: current issues and challenges  
b. Using AI to advance the health of people and communities around the world [link]  
**Lab:** Intro to Python and NumPy  
a. Walsh: *Python Basics* (the rest of the chapter)  
b. NumPy for Beginners | Discussion post, Lab Assignment |
| 3 | **Discussion:** Cultural Heritage Informatics  
a. As technology like AI propels us into the future, it can also play an important role in preserving our past [link]  
b. Integrated interdisciplinary workflows for research on historical newspapers: Perspectives from humanities scholars, computer scientists, and librarians.  
**Lab:** Intro to pandas  
b. Basic plotting with Seaborn | Discussion post, Lab Assignment |
| 4 | **Discussion:** Human-centered Data Science  
a. Human-Centered Data Science: When succeeding in data science means interacting with humans [link]  
b. What is Data Science [link]  
c. Critical Questions for Big Data  
**Lab:** Data Cleaning | Discussion post, Lab Assignment |
<table>
<thead>
<tr>
<th>Week</th>
<th>Discussion</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Social Informatics</td>
<td></td>
</tr>
</tbody>
</table>
  a. What Is Social Informatics and Why Does It Matter?  
  b. Bias in Computer Systems [link]  
  c. Social-technical analysis of data/tools/info systems  
  Discussion post, Lab Assignment |
|      | SQL (using pandasql)  
  a. Walsh: Data Collection |
| 6    | Structured Data Representation – Network Analysis |  
  a. Analyzing Social Networks: Introduction  
  b. Network Analysis in the Social Sciences  
  c. Network of Thrones [link]  
  Discussion post, Lab Assignment |
|      |  
  a. Network analysis (networkx, gephi)  
  b. Cloud computing/storage (e.g., Google Colab, GCP, AWS) |
| 7    | Data Visualization |  
  a. What Is Data Visualization? Definition, Examples, And Learning Resources [link]  
  b. Fundamentals of Data Visualization – Introduction [link]  
  c. Same Data, Multiple Perspectives: Curse of Expertise in Visual Data Communication [link]  
  Discussion post, Lab Assignment |
|      |  
  a. Interactive Data Visualization with Plotly Express.  
  b. Time Series with Prophet |
| 8    | Unstructured Data Representation |  
  a. Word Representations: Putting Words into Computers  
  b. Vector Semantics and Embeddings [link]  
  Discussion post, Lab Assignment, Project Proposal Due |
|      |  
  Lab: Word Embedding Analysis (gensim/NLTK) |
| 9    | Fall Break – No Class |  
  Discussion: Disinformation (ethics.fast.ai) |
| 10  | **Lab:**  
|     | a. Probability and Statistics  
|     | b. SciPy  
|     | Discussion post, Lab Assignment  
| 11  | **Lab:**  
|     | a. Modeling and Model Deployment (Intro to SK-Learn)  
|     | b. The Bias Variance Tradeoff  
|     | c. Streamlit and Dash (Flask)  
|     | **Discussion:** [Bias & Fairness](ethics.fast.ai)  
|     | Discussion post, Lab Assignment, **Project Data Cleaned**  
| 12  | **Lab:**  
|     | a. Supervised Learning  
|     | b. Regression, Classification, Intro to Artificial Neural Networks  
|     | **Discussion:** [Ethical Foundations & Practical Tools](ethics.fast.ai)  
|     | Discussion post, Lab Assignment  
| 13  | **Lab:**  
|     | a. Unsupervised Learning  
|     | b. Clustering  
|     | **Discussion:** [Privacy & Surveillance](ethics.fast.ai)  
|     | Discussion post, Lab Assignment, **Project MVP Due**  
| 14  | **Lab:**  
|     | a. Semi-/Self-supervised and Reinforcement Learning  
|     | b. (Mis)using Chat GPT  
|     | **Discussion:** [How did we get here? Our Ecosystem](ethics.fast.ai)  
|     | Discussion post, Lab Assignment  
| 15  | **Lab:** Model Evaluation  
|     | **Discussion:** [Algorithmic Colonialism/Next Steps](ethics.fast.ai)  
|     | Discussion post, Lab Assignment  
| 16  | **Final Project Presentation**  
|     | **Project Due**, Peer grading  
| 17  | **Final Week – No Class**  
|     | - |
As a rule, I will not shy away from using Google or StackOverflow in class to search for anything of which I am unsure. **Efficient googling is a data practitioner skill just like any other**, and of course, no one is perfect!

### Course Grade Breakdown

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grade Contribution</th>
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<tbody>
<tr>
<td>Discussion Posts</td>
<td>25%</td>
</tr>
<tr>
<td>Lab Assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Project Milestones</td>
<td>20%</td>
</tr>
<tr>
<td>Final Project*</td>
<td>30%</td>
</tr>
</tbody>
</table>

*See above for the project grading rubric.

### Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Appraisal</th>
</tr>
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<tbody>
<tr>
<td>A+</td>
<td>97 – 100%</td>
<td>Outstanding achievement, given at the instructor’s discretion</td>
</tr>
<tr>
<td>A</td>
<td>93 – 96.99%</td>
<td>Excellent achievement</td>
</tr>
<tr>
<td>A−</td>
<td>90 – 92.99%</td>
<td>Very good performance and quality of work</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89.99%</td>
<td>Good performance and quality of work</td>
</tr>
<tr>
<td>B</td>
<td>83 – 86.99%</td>
<td>Modestly acceptable performance and quality of work</td>
</tr>
<tr>
<td>B−</td>
<td>80 – 82.99%</td>
<td>Marginal acceptable performance and quality of work</td>
</tr>
<tr>
<td>C/D/F</td>
<td>≤ 79.99%</td>
<td>Unacceptable work (Core course must be repeated for credit)</td>
</tr>
</tbody>
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Expectations, Guidelines, and Policies

Attendance

A basic expectation for this course is that you will participate in all class meetings, whether online or face-to-face, and conscientiously complete all required course activities and assignments. Class attendance entails being present and attentive for the entire class period.

Attendance shall be taken on random occasions via a sign-in sheet. If you do not sign the attendance sheet on a day when attendance is taken, you shall be marked absent. Signing the attendance sheet for another student is prohibited. The instructor is required to submit to the Registrar a record of student attendance, and action shall be taken if the record conveys a trend of absenteeism.

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 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.

You are allowed up to two absences. Each additional absence, unless excused, results in a 5% reduction in your final course grade. More than four marked absences will result in an F in the course. Missing class may also reduce your grade by eliminating opportunities for class participation. For all absences, the student is responsible for all covered materials and assignments.
Deliverables

You are responsible for completing each deliverable by its deadline, and you must submit it using the specified method. Deadlines are outlined here in the syllabus as well as in Canvas. Should you miss a class (if unexcused), you are still responsible for completing each deliverable by the deadline, and for finding out what was covered in class, including any new or modified deliverable. All of this information should be available on Canvas.

Unless given prior approval by the course instructor, grades for late submissions will be reduced by 10%. Further lateness will incur a 10% deduction for each 24-hour period after the deadline. Missing assignments will receive a grade of 0.

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. (See http://registrar.iupui.edu/incomp.html for more.)

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 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 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 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 citations 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 acknowledgement.
   b) A student must give credit to the originality of others and acknowledge indebtedness whenever:
i) Directly quoting another person’s actual words, whether oral or written;

ii) Using another person’s ideas, opinions, or theories;

iii) Paraphrasing the words, ideas, opinions or theories of others whether oral or written;

iv) Borrowing facts, statistics, or illustrative material; or

v) Offering materials assembled or collected by others in the form of projects or collections without acknowledgement.

4. **Interference:** A student must not steal, change, destroy, or impede another student’s work, not should the student unjustly attempt, through a bribe, a promise of favors or threats to affect any student’s grade or the evaluations of academic performance.

5. **Violation of Course Rules:** A student must not violate course rules established by a department, a course syllabus, verbal or written instructions, or the course materials that are rationally related to the contents of the course or 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 the 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 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 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 or generally not permitted. Laptop use may be permitted if it 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 its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included and values (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 office continues, possible disciplinary action.

3. **Communication:** For classroom-based courses, the instructor or teaching assistant should response 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 fact-to-face, telephone, or teleconferenced meetings, and announce periods of extended absence in advance.

4. **Counseling and Psychological Services:** Students seeking counseling or other psychological services should contact the CAPS office and 274-2548 or capsindy@iupui.edu. For more information visit [http://life.iupui.edu/caps/](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/courseeval](https://soic.iupui.edu/app/courseeval). 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 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 if accommodations needed. Students requiring accommodations register with Adaptive Education 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, Tel. 317 274-3241). For more information visit [http://aes.iupui.edu](http://aes.iupui.edu).

7. **Email:** Indiana University uses you IU email account as an official means of communication, and students should check it dialing. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from you 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](http://protect.iu.edu/emergency).

9. **IUPUI course policies:** Several 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 as an instructional roll, or administrative personnel. [http://registrar.iupui.edu/official-enrollment-class-attendance.html](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](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 even, will notify students of changes immediately.

13. **Sexual misconduct:** IU does not tolerate sexual harassment or violence. For more information and resources, visit [http://stopsexualviolence.iu.edu/](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. For more information visit [http://studentaffairs.iupui.edu/advocate](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 of Indiana University’s Strategic Directions Charter:

1. Communities of Learning
2. Responsibilities of Excellence
3. Accountability
4. Best Practices

**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.