

INFO B430

Introduction to Health Informatics

Department of BioHealth Informatics
Indiana University School of Informatics and Computing, Indianapolis
Fall 2022

Section: 26339
Credit Hours: 3
Time: This is an online course. Lectures will be posted weekly for students to review.
Location: Online
First Class: Monday, August 22, 2022.
Instructor: Suhila Sawesi, PhD, MPharm, BPhm
Office Hours: By appointment
Phone: Email will be the best and most efficient way to contact me.
Email: ssawesi@iu.edu Instructor will respond to emails within two Indiana University working days (48 hours), which exclude weekends and holidays.

COURSE DESCRIPTION

This series of classes will help to make students better aware of the principles of health informatics. The course will assess the topics of information sciences and computer technology and how they can be used to improve the value of research and practice in the field of health care. The fundamental principles of information science that regulate systems of communicating, how clinical decisions are made, how information is retrieved, e-health, bio-computing, and proven medicine, will be examined.

Rationale

This course will explore how health information (informatics) is applied in terms of how this information is collected, stored, retrieved, communicated, and optimally used as it relates to health-related data and vital information, in terms of facts and knowledge.

Required Textbooks

1. William R. Hersh, Robert E. Hoyt (2018). *Health Informatics: Practical Guide Seventh Edition*. Print copy ISBN: 978-1-387-64241-0. eBook ISBN: 978-1-387-82750-3. <https://www.informaticseducation.org/>

Teaching and Learning Methods

- Lectures
- Readings
- Threaded topical discussions
- Quizzes and Exams
- Research Papers and Peer Reviews

Student Learning Outcomes

Once the students have completed this course of study, they will be able to:

	PUL	Core Comp.
1. Comprehend the scholarly discipline of health informatics and how it is applied to objective/clinical applications	3	1, 3,4,7
2. Delineate common procedures and business practices used in the field of health informatics today.	1A, 2	1,3,4,7
3. Be conscious of concerns related to privacy, group, moral principles, and the strategic consequences of practicing health informatics.	3, 5, 6	3,4,6,7
4. Identify existing validity questions and circumstances related to health informatics and provide workable resolutions.	1A, 2, 3	2,3,4,7, 8
5. Comprehend the significance of incorporating research, clinical data, and theory for purposes of enhancing patient consequences.	2, 3	2, 7,8
6. Grasp the variety of ways that health data relates to health care applications—this includes clinical, administrative, and financial data.	2, 3	2,3,7,8

Principles of Undergraduate Learning (PUL):

- | | |
|---|------------------|
| 1A. Fundamental communication: written, verbal, and sight skills | Mid-level focus |
| 1B. Fundamental communication: measurable skills | |
| 1C. Fundamental communication: data resource (both automated and non-automated) expertise | Limited emphasis |
| 2. Disciplined thinking | Mid-level focus |
| 3. Assimilation and implementation of knowledge | Primary focus |
| 4. Academic discernment, extent, and adaptivity | |
| 5. Comprehending population and norms of a culture | |
| 6. Standards/beliefs and conventionalities | |

AMIA Core Competencies¹ covered in this course

- Acquire professional perspective:** Summarize and explain the history and values of the discipline and its relationship to related fields while demonstrating an ability to read, interpret, and critique the core literature
- Analyze problems:** Analyze, understand, abstract, and model a specific biomedical problem in terms of data, information and knowledge components
- Work collaboratively:** Demonstrate the ability to team effectively with partners from diverse disciplines
- Disseminate and discuss:** Communicate effectively to audiences in multiple disciplines in persuasive written and oral form
- Evaluation:** controlled trials, observational studies, hypothesis testing, ethnographic methods, field observational methods

6. **Ethical, Legal, Social Issues:** human subjects, HIPAA, informed consent, secondary use of data, confidentiality, privacy
7. **Fundamental knowledge:** Understand the fundamentals of the field in the context of the effective use of biomedical data, information, and knowledge, particularly translational and clinical research, healthcare, providers, consumer health, quality assurance, safety, error reduction, medical records, personal health records, information security and privacy, population health
8. **Procedural knowledge and skills:** For substantive problems related to scientific inquiry, problem solving, and decision making, analyze and critically evaluate solutions based on biomedical informatics approaches, particularly framing complex biomedical informatics problems in terms of data, information, and knowledge.

Evaluation and Assessment

Comprehensive information related to every assigned task will be given as the course evolves. It is important to pay close attention to fulfilling each set of instructions accurately, making sure that responses and presentations are clear and comprehensible, and that they show that critical thinking was used when completing all assignments/presentations. Research Paper and Discussion Board Rubrics will be used to assess the quality of the posts and replies.

Grades will administered based on the following point scale:

Assignment	Percent	
1	Assignments (3 Research Papers and Peer Reviews)	20%
2	Quizzes (MCQ)	30%
3	Exams (Midterm & Final)	20%
4	Class Discussion Boards	30%
Total		100%

Grading Scale (IUPUI standard)

The conversion table from numerical format to letter grades is followed:

A+	97–100%	Professional level work, showing highest level of achievement
A	93–96.99%	Extraordinarily high achievement, quality of work; shows command of the subject matter
A–	90–92.99%	Excellent and thorough knowledge of the subject matter
B+	87–89.99%	Above average understanding of material and quality of work
B	83–86.99%	Mastery and fulfillment of all course requirements; good, acceptable work
B–	80–82.99%	Satisfactory quality of work

C+	77–79.99%	Modestly acceptable performance and quality of work
C	73–76.99%	Minimally acceptable performance and quality of work
C–	70–72.99%	Unacceptable work (Core course must be repeated for credit)
D+	67–69.99%	Unacceptable work (Course must be repeated for credit)
D	63–66.99%	Unacceptable work
D–	60–62.99%	Unacceptable work
F	Below 60	Unacceptable work

No credits are granted for a grade below C.

"If you earn a B- and pass a written test you can get waived from the graduate version (B530) if you decide to pursue the master degree in Health Informatics".

- 1) **Work Assigned:** All assigned work will be announced (posted) on Canvas and is to be completed and returned prior to the due date. Information related to each specific posting and its deadline can be found in the course schedule, also found online. Assignments consist of written brief discourse that students provide about an assigned issue that addresses topics covered in the course. Completed written assignments need to be posted online by way of the Canvas website.
- 2) **Quizzes:** Brief informational tests (quizzes) will be given periodically throughout the semester. They will consist of multiple-choice questions and answers and address topics covered in the weekly reading assignments.
- 3) **Tests (Midterm and Final):** There will be both midterm and final online exams. Both will consist of a start and end time when students can login, complete each exam, and submit via Canvas. These tests will match the format of the assignments covered during the semester and will require students to discuss specific clinical cases or readings. This course requires no memorization. Instead, students must be able to comprehend the content and form logical connections/conclusions based on the topics covered. All assigned work, quizzes, and formal exams will be conducted in an out-of-class format. This will allow students to refer to legitimate resources, including the Internet, published books, slides, published papers, etc. to seek out answers. However, in all instances, plagiarism is not allowed. What is strictly prohibited is developing answers to test questions while working in a group; sharing answers in a group (even if only two students), and emailing answers to classmates.
- 4) **Discussion Boards:** Successful participation in discussion boards requires logging in on time, posting regularly, reciprocally communicating with the other students, providing well thought-out contributions, and showing that the assigned reading was completed prior to each class. Refer to the rules and regulations related to grading/participation in the discussion boards. One discussion board grade (the lowest grade) will be dropped when determining the final grade for the discussion section of the course.

Number of Points/Criteria for Assessing Threaded Discussions

Evaluation Forms: Students need to become familiar with all grading forms/systems the instructor will use to evaluate their projects, assignments, papers, and presentations.

Number of Points/Criteria for Assessing Threaded Discussions

4	<ul style="list-style-type: none"> • Quality (not quantity) is exceptional • Student shows evidence that all reading assignments have been completed • Able to apply a level of understanding through personal reflection • Contributes original insights/responses to the group, clearly understood by others in the group • Both leads and supports discussion; demonstrates respect for others and their contributions
3	<ul style="list-style-type: none"> • Participation is of superior quality, not quantity • Shows evidence that student has finished all assigned reading • Able to document an applied level of comprehension of topics by way of personal reflections • Answers are provided, through logic may not be immediately obvious • Offers original insights/responses when participating • Connects with what others are saying; shows respect for other students and their ideas
2	<ul style="list-style-type: none"> • Satisfies both quality and quantity requirements for the course • Shows evidence that student has finished all assigned reading • Documents paraphrasing or summarizing assigned readings • Shows fuzzy logic or answers are not fully developed • Responses merely responses to others; demonstrates little originality • Shows respect for others and their ideas
1	<ul style="list-style-type: none"> • Fails to meet course expectations • Unclear whether student has actually completed assigned readings • Merely provides summary/paraphrasing of readings. Shares no insights • Extends minimal effort when providing answers • Shows no respect to fellow classmates and their ideas
0	<ul style="list-style-type: none"> • Demonstrates assignments have not been completed

INFO B430 Schedule of Topics and Readings

Modules	Material	Deliverable
Week 1 Introduction to Health	<ul style="list-style-type: none"> • Learning Objective. • Textbook: Chapters 1, 2, & 5 • Recommended Reading: 	Due Sunday no later than 11:59 pm. <ul style="list-style-type: none"> • Icebreaker • Syllabus Quiz

<p>Informatics and Standards</p>	<ul style="list-style-type: none"> ○ Kulikowski, C. A., Shortliffe, E. H., Currie, L. M., Elkin, P. L., Hunter, L. E., Johnson, T. R., ... & Smith, J. W. (2012). AMIA Board white paper: definition of biomedical informatics and specification of core competencies for graduate education in the discipline. <i>Journal of the American Medical Informatics Association</i>, 19(6), 931-938. ○ Benson, T., & Grieve, G. (2016). <i>Principles of health interoperability: SNOMED CT, HL7 and FHIR</i>. Springer. ○ Giannangelo, K. (Ed.). (2006). <i>Healthcare code sets, clinical terminologies, and classification systems</i>. AHIMA, American Health Information Management Association. ● Video: Herskovic, Jorge. "Standards Lecture." <i>YouTube</i>, YouTube, 13 Apr. 2012, www.youtube.com/watch?v=PNz0fleArS4&feature=youtu.be. ● Mini-lecture and class slides 	<ul style="list-style-type: none"> ● Introduction to HI and Standards Discussion ● Introduction and Standards Quiz
<p>Week 2 - Natural Language Processing and Data Analytics</p>	<ul style="list-style-type: none"> ● Learning Objective. ● Textbook: Chapter 7 ● Recommended Reading: <ul style="list-style-type: none"> ○ Gensinger Jr, R. A., & CPHIMS, F. (2014). Analytics in healthcare: An introduction. HIMSS. ○ Kankanhalli, A., Hahn, J., Tan, S., & Gao, G. (2016). Big data and analytics in healthcare: introduction to the special section. <i>Information Systems Frontiers</i>, 18(2), 233-235. ○ Nadkarni, P. M., Ohno-Machado, L., & Chapman, W. W. (2011). Natural language processing: an introduction. <i>Journal of the</i> 	<p>Due Sunday no later than 11:59 pm..</p> <ul style="list-style-type: none"> ● NLP and Analytics Discussion ● NLP and Analytics Quiz

	<p><i>American Medical Informatics Association, 18(5), 544-551.</i></p> <ul style="list-style-type: none"> • Video: IBMWatsonSolutions. “IBM Watson.” <i>YouTube</i>, YouTube, www.youtube.com/user/IBMWatsonSolutions. • Mini-lecture and class slides 	
Week 3 - Health Informatics Ethics, Security and Privacy	<ul style="list-style-type: none"> • Learning objective. • Textbook: Chapters 10 & 11 • Recommended Reading: <ul style="list-style-type: none"> ○ Agaku, I. T., Adisa, A. O., Ayo-Yusuf, O. A., & Connolly, G. N. (2013). Concern about security and privacy, and perceived control over collection and use of health information are related to withholding of health information from healthcare providers. <i>Journal of the American Medical Informatics Association, 21(2), 374-378.</i> ○ Iyengar, A., Kundu, A., & Pallis, G. (2018). Healthcare Informatics and Privacy. <i>IEEE Internet Computing, 22(2), 29-31.</i> ○ Kobayashi, S., Kane, T. B., & Paton, C. (2018). The Privacy and Security Implications of Open Data in Healthcare. <i>Yearb Med Inform, 41, 7.</i> • Web resource: <ul style="list-style-type: none"> ○ Health Information Privacy. (2019, January 04). Retrieved from https://www.hhs.gov/hipaa/index.html • Mini-lecture and class slides 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • Ethics, Security and Privacy Discussion • Ethics, Security and Privacy Quiz • Research Paper #1
Week 4 - Electronic Health Records and Health Information Exchange	<ul style="list-style-type: none"> • Learning Objectives. • Textbook: Chapters 4 & 6 • Articles-none • Web resource: OpenEMR. (n.d.). Retrieved from http://www.open-emr.org/ 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • EHR and HIE Discussion • EHR and HIE Quiz

	<ul style="list-style-type: none"> • Mini-lecture and class slides 	
<p>Week 5- Consumer Health Informatics and Personal Health Records</p>	<ul style="list-style-type: none"> • Learning objectives • Textbook: Chapters 6, 12, & 13 • Recommended Reading: <ul style="list-style-type: none"> ○ Campos-Castillo, C., & Anthony, D. L. (2014). The double-edged sword of electronic health records: implications for patient disclosure. <i>Journal of the American Medical Informatics Association</i>, 22(e1), e130-e140. ○ Dimitropoulos, L., Patel, V., Scheffler, S. A., & Posnack, S. (2011). Public attitudes toward health information exchange: perceived benefits and concerns. <i>The American journal of managed care</i>, 17(12 Spec No.), SP111-6. • Mini-lecture and class slides 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • Consumer Health and PHR Discussion • Consumer Health and PHR Quiz
<p>Week 6– Telehealth</p>	<ul style="list-style-type: none"> • Learning objectives • Textbook: Chapter 12 & 17 • Recommended Reading: <ul style="list-style-type: none"> ○ Kahn, Jeremy M. “Virtual Visits; Confronting the Challenges of Telemedicine.” <i>New England Journal of Medicine</i> 372.18 (2015): 1684-1685. • Mini-lecture and class slides 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • Telehealth Discussion • Telehealth Quiz • Research Paper #2
<p>Week 7 - Imaging Informatics</p>	<ul style="list-style-type: none"> • Learning objective. • Textbook: Chapter 16 • Recommended Reading: <ul style="list-style-type: none"> ○ Sinha, U., Bui, A., Taira, R., Dionisio, J., Morioka, C., Johnson, D., & Kangarloo, H. (2002). A review of medical imaging informatics. <i>Annals of the New York Academy of Sciences</i>, 980(1), 168-197. • Mini-lecture and class slides 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • Imaging Discussion • Imaging Quiz
<p>Week 8 - Clinical</p>	<ul style="list-style-type: none"> • Learning objective. • Textbook: Chapter 8 	<p>Due Sunday no later than 11:59 pm.</p>

Decision Support	<ul style="list-style-type: none"> • Recommended Reading: <ul style="list-style-type: none"> ○ Kilsdonk, E., Peute, L. W., & Jaspers, M. W. (2017). Factors influencing implementation success of guideline-based clinical decision support systems: A systematic review and gaps analysis. <i>International journal of medical informatics</i>, 98, 56-64. • Web resource: <ul style="list-style-type: none"> ○ HIMSS-What is CDS? https://www.himss.org/library/clinical-decision-support/what-is?navItemNumber=13238 ○ Agency for Healthcare Research and Quality (AHRQ) (2014-2018). Clinical Decision Support (CDS). Accessible at: https://healthit.ahrq.gov/ahrq-funded-projects/current-health-it-priorities/clinical-decision-support-cds ○ Office of the National Coordinator (ONC). (2012-2014). Stage 1 Final Rule Meaningful Use Objectives...Compared to Stage 2. (Educational Resource). • Mini-lecture and class slides 	<ul style="list-style-type: none"> • CDSS Discussion • CDSS Quiz
Week 9	<ul style="list-style-type: none"> • Midterm Exam 	Due Sunday no later than 11:59 pm.
Week 10 - Evidence-based Medicine	<ul style="list-style-type: none"> • Objective learnings. • Textbook: Chapter 14 • Recommended Reading: <ul style="list-style-type: none"> ○ Ammenwerth, E. (2015). Evidence-based health informatics: how do we know what we know? <i>Methods Inf Med</i>, 54(4), 298-307. • Mini-lecture and class slides 	Due Sunday no later than 11:59 pm. <ul style="list-style-type: none"> • EBM Discussion • EBM Quiz
Week 11- Public Health Informatics	<ul style="list-style-type: none"> • Learning Objective. • Textbook: Chapter 19 • Recommended Reading: 	Due Sunday no later than 11:59 pm.

	<ul style="list-style-type: none"> ○ Baker, E. (2015) Addressing Urgent Public Health Workforce Needs: Building Informatics Competency and Strengthening Management and Leadership Skills. <i>J Public Health Management Practice</i>, 2015, 21(6 Supp), S5–S6. ● Web resource: <ul style="list-style-type: none"> ○ <u>Regenstrief Institute</u> http://www.regenstrief.org/ ● Mini-lecture and class slides 	<ul style="list-style-type: none"> ● Public Health Informatics Discussion ● Public Health Informatics Quiz
Week 12- Clinical Research Informatics	<ul style="list-style-type: none"> ● Learning Objectives ● Textbook: Chapter 20 ● Recommended Reading: <ul style="list-style-type: none"> ○ Embi, P. J., & Payne, P. R. (2009). Clinical research informatics: challenges, opportunities and definition for an emerging domain. <i>Journal of the American Medical Informatics Association</i>, 16(3), 316-327. ● Mini-lecture and class slides 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> ● Clinical Research Informatics Discussion ● Clinical Research Informatics Quiz ● Research Paper # 3
Week 13- Quality Improvement and Patient Safety	<ul style="list-style-type: none"> ● Learning Objectives ● Textbook: Chapter 9 ● Recommended Reading: <ul style="list-style-type: none"> ○ Clancy, C.M. (2009). Patient Safety: One Decade After To Err Is Human. <i>Patient Safety and Quality Healthcare</i>. Sept/Oct 2009. Published 11Jun2009. ○ Clark, C. (2009). 10 Years After To Err Is Human: Are Hospitals Safer? <i>Health Leaders Media</i>. 30Nov2009. Accessed 5Nov2015. ○ Safe Patient Project (2009). To Err Is Human - To Delay Is Deadly. <i>Consumers Union</i>. May 2009. Accessed 5Nov 2015. ○ Allan, M (2013). How Many Die From Medical Mistakes 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> ● Quality Improvement and Patient Safety Discussion ● Quality Improvement and Patient Safety Quiz

	<p>In U.S. Hospitals? NPR Interview. 20Sep2013.</p> <ul style="list-style-type: none"> • Web resource: <ul style="list-style-type: none"> ◦ Agency for Healthcare Research and Quality https://www.ahrq.gov/ • Mini-lecture and class slides 	
Thanksgiving Week		
<p>Week 14- Information Retrieval and Introduction to Data Science</p>	<ul style="list-style-type: none"> • Learning Objectives • Textbook: Chapters 7 & 15 • Recommended Reading: <ul style="list-style-type: none"> ◦ Goeriot, L., Jones, G. J., Kelly, L., Müller, H., & Zobel, J. (2016). Medical information retrieval: introduction to the special issue. <i>Information Retrieval Journal</i>, 19(1-2), 1-5. • Mini-lecture and class slides 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • Information Retrieval and Introduction to Data Science Discussion • Information Retrieval and Introduction to Data Science Quiz
<p>Week 15- Policies and the Future of Health Informatics</p>	<ul style="list-style-type: none"> • Learning Objective. • Textbook: Non • Recommended Reading: <ul style="list-style-type: none"> ◦ Patel, V.L., & Kannampallil, T.G. (2014). Human factors and health information technology: current challenges and future directions. <i>Yearbook of Medical Informatics</i>, 9(1), 58. ◦ Holzinger, A., Dehmer, M., & Jurisica, I. (2014). Knowledge discovery and interactive data mining in bioinformatics-state-of-the-art, future challenges and research directions. <i>BMC Bioinformatics</i>, 15(6), 11. ◦ Meaningful Use Stage 3 Final Recommendations. https://www.healthit.gov/sites/default/files/HITPC_MUWG_Stage3_Recs_2014-04-01.pdf ◦ Bender, E. (2015). Big data in biomedicine. <i>Nature</i>, 527(7576), S1-S1. • Web resource: 	<p>Due Sunday no later than 11:59 pm.</p> <ul style="list-style-type: none"> • Future of Health Informatics Discussion • Future of Health Informatics Quiz

	<ul style="list-style-type: none"> ○ HealthIT.gov https://www.healthit.gov/topic/laws-regulation-and-policy • Mini-lecture and class slides 	
Week 16	<ul style="list-style-type: none"> • Final Exam 	Due Sunday no later than 11:59 pm.

Late work

Assignments are due by the date and time posted in Canvas. Severe weather rarely results in cancellation of classes or changes in due dates/times of assignments. As such, previously assigned work will still be due as posted in Canvas. Please clarify with the instructor regarding due dates of future assignments.

Extensions

Extensions may be granted in the case of exceptional circumstances. You must discuss these circumstances with your instructor at least 24 hours before the assignment is due. (Note: Discussing the situation is not the same as merely informing your instructor.) In order for a late assignment to receive full marks, it must include a note from the instructor confirming the extension date. An instructor note, attached to your assignment, can include a printed copy of an e-mail exchange between instructor and student indicating that an extension has been granted. Medical reasons for a late assignment must be documented by a doctor's note. Under normal circumstances (according to university regulations) medical excuses must be presented promptly (within two weeks from the date of the illness).

Backup copies

Please keep an electronic copy and a hard copy of your final paper and presentation.

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*. <https://studentcode.iu.edu/>

All students must also successfully complete the Indiana University Department of Education "How to Recognize Plagiarism" Tutorial and Test. 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.

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 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.
 - 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:**^{[[SEP]]}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 to deprive others of the information they contain.
5. **Violation of Course Rules:**^{[[SEP]]}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:**^{[[SEP]]}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.

CAMPUS POLICIES

1. **Administrative withdrawal (undergraduate only):** 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. <https://studentcentral.iupui.edu/register/administrative-withdrawal.html>
2. **Counseling and Psychological Services (CAPS):** Students seeking counseling or other psychological services should contact the [CAPS office](#) at 274-2548 or capsindy@iupui.edu.
3. **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)
4. **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 forms from AES 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>. For ADA resources visit <https://accessibility.iu.edu/ada/>. For ADA policies visit <https://policies.iu.edu/policies/ua-02-americans-disability-act/>.

5. **Education and Title VI:** 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). Title VI of the Civil Rights Act of 1964 protects people from discrimination based on race, color, or national origin in programs or activities that receive Federal financial assistance. Programs and activities that receive ED funds must operate in a nondiscriminatory manner, including admissions, recruitment, financial aid, academic programs, student treatment and services, counseling and guidance, discipline, classroom assignment, grading, vocational education, recreation, physical education, athletics, housing, and employment, if it affects those who are intended to benefit from the Federal funds.
<http://www2.ed.gov/about/offices/list/ocr/docs/hq43e4.html>
6. **Emergency preparedness:** Know what to do in an emergency to be protected and to protect others. For more information, visit the emergency management website at <http://protect.iu.edu/emergency>.
7. **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. <https://facultystaffcentral.iupui.edu/enrollment/index.html> Children may *not* attend class with their parents, guardians, or childcare providers.
8. **Religious holidays:** IUPUI respects the right of all students to observe their religious holidays and will make reasonable accommodation, upon request, for such observances. 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.
9. **Sexual misconduct:** One of the instructor’s responsibilities is to create a safe learning environment. IU does not tolerate sexual harassment or violence, which are prohibited under Title IX and the [sexual misconduct policy](#). The university can help students subjected to sexual misconduct. To seek help, obtain information and resources, or speak to someone confidentially, visit <https://stopsexualviolence.iu.edu/>. Federal regulations and University policy require the instructor to convey promptly any information about potential sexual misconduct to IUPUI’s Deputy Title IX Coordinator or IU’s Title IX Coordinator to ensure appropriate measures are taken and resources are offered. To protect a student’s privacy all involved will only share information with those who need to know to ensure the university can respond and assist.
10. **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>.

SCHOOL POLICIES AND GUIDELINES

1. **Civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, groupwork, 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. 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.
2. **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.
3. **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.
4. **Email:** Indiana University uses the student's IU email account as an official means of communication, and students should check it daily. Although the student may have IU email forwarded to an outside email account, the student should email faculty and staff from the student's IU email account.
5. **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.

MISSION STATEMENT

The Mission of IUPUI is to provide for its constituent's 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.