Nursing Informatics
Purdue University

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Course credit: 3
Pre- or co-requisite: None

Course description: Integration of nursing science with computer technology and information science to identify, gather, process, and manage information. Emphasis on technology-based health applications, which support clinical, administrative, research, and educational decision-making to enhance the efficacy of nursing endeavors.

Course goals: The goal of this 3-credit online course is to build foundational informatics competencies, which are essential for advanced practice registered nurses (APRNs) to function safely and effectively in the digital healthcare environment. Course content and learning activities are designed to build foundational informatics competencies related to APRNs and help students achieve course objectives.

Course objective: At the end of this course, the student will achieve the following objectives:
1. Define informatics competencies for APRNs.
2. Use computer applications to aggregate and analyze data for evidence-based practice and quality improvement.
3. Describe systems theory and design as applied to health informatics.
4. Identify key trends and regulatory requirements for healthcare information systems.
5. Evaluate the strengths and weaknesses of health information systems in practice.
6. Explain the relationship among information technology, information literacy, and evidence-based practice.
7. Describe and critique taxonomic and terminology systems used in national efforts to enhance interoperability of information systems and knowledge management.
8. Describe how technology can be used to engage and empower patients as partners in managing their own health and healthcare experience.
9. Articulate ethical/legal issues that arise in using, designing, and managing healthcare information systems.

These objectives will be measured by performance on the course requirements indicated below.

Course textbook: McGonigle, D., & Mastrain, K. G. (2017). *Nursing informatics and the foundation of knowledge* (4th ed.). Burlington, MA: Jones & Bartlett Learning.
- Feel free to get the 5th edition if you prefer.
- See "Weekly Schedule" for assigned chapters and journal club articles to read for each

week.
- To purchase books: Go to Amazon/Purdue link (https://www.amazon.com/ulp?ref=clp_ulp_redirect_CAMPUS_PUR&zipcode=47906) to order and pick up books on Purdue campus or deliver to home.

Recommended book: American Psychological Association (2019). *Publication manual of the American Psychological Associatio*n (7th ed.). Washington, DC: American Psychological Association.
- Follow information in this book about APA writing style and format (e.g., in-text citation and references list). It is students' responsibility that all assignments follow APA style.
- Visit this Library Guide "Foundations of Research and Evidence-Based Practice: Citing & Research Tools" (http://guides.lib.purdue.edu/c.php?g=352918&p=2378132) or/and Purdue Online Writing Lab (OWL; https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html) for additional resources to master APA writing style and format. Note. If information in Purdue OWL is not consistent with APA's *Publication Manual*, follow information in the *Publication Manual*.

Course grading and evaluation: Completion of assignments on due date is required. The course grade will be based on the following:
   30%   Quizzes
   35%   Assignments
   35%   Informatics Project
   EXTRA CREDITS!   3.5%   Journal Club

See "Weekly Schedule" for assignment due dates. Go to Assignments link within each week to find specific instructions, objectives, and evaluation criteria for most the assignments. In general, instruction and objectives files related to these assignments will be released one week before due date.

All quizzes are due on Wednesdays by 11:59pm Eastern Time and cover the assigned chapter content. The lowest quiz score out of the 11 quizzes will be dropped. The "syllabus quiz" will be counted as part of the assignments instead of quizzes.

Assignments are due on the specified dates by 11:59pm Eastern Time. Submit all assignments in Brightspace by due date. DO NOT attach assignment file via email to faculty unless instructed to do so. No late assignment will be accepted. If you have problems to complete assignments by due date, you must make arrangements with faculty at least a week prior to due date.

Guidelines for informatics project can be found on Brightspace.

Journal club is newly added to the curriculum this academic year. Participation is optional to earn extra credits. Based on feedback from previous classes, students would like to have additional interaction with faculty to discuss timely issues taking place in the field of nursing informatics. With the outbreak of COVID-19 pandemic, nursing informatics has grown quickly as a field with many valuable studies published. Faculty selected some of these recently published nursing informatics studies from these seven areas:

- Overview
- The COVID-19 pandemic
- Gerontology
- Family health
- Pediatrics
- Psychiatric/mental health
- Diversity, equality, inclusion

Journal club articles should be located and downloaded by student to read before each session. Purdue Libraries and School of Information Studies (https://www.lib.purdue.edu/help/access) provide access to these articles electronically. Each journal club will take place at faculty's virtual WebEx office on the specified date on Mondays between 5 to 6pm Eastern time (see "Weekly Schedule"). Students who decided to participate should read the assign article(s), and contribute to the conversation during each journal club to earn 0.5% extra credit. Students are welcome to bring questions, comments, and clinical experiences to the discussion. Journal clubs will be recorded and uploaded to Brightspace in 48 hours. Students who would like to but cannot participate due to scheduling conflict have the opportunity to first read the article(s), then watch the discussion, and email faculty their 200-word reflection by 11:59pm on the Friday after each journal club.

Grading:
    A = 90-100%
    B = 80-89%
    C = 70-79%
    D = 60-69%
    F = Below 60%

Please note, satisfactory performance for any assignment or paper deserves a B. Only work with exceptional performance gets an A. Students must achieve a minimum grade of B in this course based on Purdue University Nursing Graduate Programs Student Handbook (https://www.purdue.edu/hhs/nur/students/graduate/documents/handbook.pdf).

Course format: Course information and materials are or will be available on Purdue's Brightspace online (https://purdue.brightspace.com/d2l/login). Students should be proficient in using D2L Brightspace. If you experience any technology issues related to Brightspace, please contact ITaP: https://www.itap.purdue.edu/help/.

- This course consists of learning modules (see "Weekly Schedule"). The objectives of each learning module are related to course objectives. The content of each module is built on the content of previous weeks.
- Faculty provides learning materials in each weekly module and will use coaching and mentoring approaches to help students learn. Strategies to promote active learning and frequent interactions between faculty and students will be used.
- Learning materials and assignments are designed to build student's informatics competencies (e.g., computer literacy, information literacy, information management, written communication, critical thinking, logical reasoning, etc.) related to APRNs.
- Quizzes and assignments are developed to assess student's mastery of learning materials and achievement related to course goals and objectives.

- Faculty will grade assignments and/or provide feedback.

Course policies/expectations: Read and understand course syllabus. Follow instructions below to help you succeed in this course while building foundational informatics competencies related to APRNs.

Class participation:
- Plan to spend 9 to 12 hours per week for this 3-credit course.
- Actively participate in course-related activities to obtain optimal learning experiences (e.g., engaging in learning materials, completing assignments, and participating in online discussions).
- Read and comply with university's policy about class absences policy (https://www.purdue.edu/advocacy/students/absences.html). Contact faculty if you have problems to participate weekly learning activities. Absence of family emergency or sick leave will need proper documentation submitted right before you are back on campus, or your grade will be affected. A petition through the Office of the Dean of Students is required for a bereaved student to be eligible for grief absences (https://www.purdue.edu/studentregulations/regulations_procedures/classes.html).
- Although this course is online, please see Purdue's response to COVID-19 to "protect yourself, protect others, protect Purdue" (https://protect.purdue.edu/).
- If you become quarantined or isolated for COVID-19 at any point in time during the semester, in addition to support from the Protect Purdue Health Center, you will also have access to an Academic Case Manager who can provide you academic support during this time. Your Academic Case Manager can be reached at acmq@purdue.edu and will provide you with general guidelines/resources around communicating with your instructors, be available for academic support, and offer suggestions for how to be successful when learning remotely. Importantly, if you find yourself too sick to progress in the course, notify your academic case manager and notify me via email. We will make arrangements based on your particular situation. The Office of the Dean of Students (odos@purdue.edu) is also available to support you should this situation occur.

Written communication:
- Communicate with clear, concise, and logical statements and have few or no errors in grammar and spelling (i.e., APA writing style) and support statements with accurate, credible, and reliable information source for all discussion posts and written assignments.
- Cite primary information source whenever possible. Tertiary information source is not acceptable. Follow APA citation format (e.g., in-text and references list) to present citation information.
- Describe in own words to demonstrate your competencies in reading comprehension, critical thinking, and logical reasoning as an APRN. No quotes or plagiarism are allowed. When a student uses quote(s) and citing source(s) but not describing in own words, the corresponding assignment grade will be C or below. When a student commits plagiarism, the corresponding assignment grade will be 0 point and this student will be referred to the Office of the Dean of Students. Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-

a, Student Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972] Refer to Purdue's student guide for academic integrity (https://www.purdue.edu/odos/osrr/academic-integrity/index.html) for details.
- Purdue Honors Pledge states "As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together – we are Purdue." See this link to a web page for more details: https://www.purdue.edu/provost/teachinglearning/honor-pledge.html.

Electronic communication:
- Demonstrate professionalism in electronic communication (e.g., email, discussion board). Read Do's and Don'ts in the Dear Students blog (https://the8blog.wordpress.com/2015/10/13/dear-students/) in regards to communicating with a faculty.
- Check your Purdue emails (@purdue.edu) regularly (recommend every day during the week).
- Faculty will reply to student's emails or posts between 24 to 48 hours during the week and will not check emails on weekends. Plan to complete learning activities during the week and contact faculty if you have questions about learning content or assignments.

Accommodating students with disabilities: For students requiring special accommodations related to disabilities, written documentation approved by Disability Resource Center must be provided to the faculty at the beginning of the semester, so that the student and faculty can arrange for mutually agreeable alternative accommodations as needed. It is the student's responsibility to notify the Disability Resource Center (http://www.purdue.edu/drc) of an impairment/condition that may require accommodations and/or classroom modifications.

Mental health: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS: https://www.purdue.edu/caps/) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

Inappropriate behaviors: Students who demonstrate inappropriate classroom behaviors, including in online environments, will be penalized. "Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity" (abstract from: https://www.purdue.edu/policies/facilities-safety/iva3.html)

Nondiscrimination: Purdue University is committed to maintain a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. Purdue University views, evaluates, and treats all persons in any University related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications, and other relevant characteristics. Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Purdue's Equal Opportunity, Equal Access and Affirmative Action policy which provides specific contractual rights and remedies. Additionally, the University promotes the full realization of equal employment opportunity for women, minorities, persons with disabilities and veterans through its affirmative action program. Please check that link to Purdue's full Nondiscrimination Policy Statement is included here Nondiscrimination Policy Statement - Purdue University (https://www.purdue.edu/purdue/ea_eou_statement.php#:~:text=Nondiscrimination%20Policy%20Statement%20Purdue%20University%20is%20committed%20to,strive%20to%20reach%20his%20or%20her%20own%20potential). Any question of interpretation regarding this Nondiscrimination Policy Statement shall be referred to the Vice President for Ethics and Compliance (http://www.purdue.edu/ethics/) for final determination.

The School of Nursing Diversity, Equity, and Inclusion (SON DEI) mission: Nursing stands at the intersectionality of health care and social justice. Nursing knowledge research and practice must be anchored in acceptance and cultural humility. The Purdue University School of Nursing represents the communities we serve and upholds the principles of diversity, equity and inclusion. We promote a safe environment to ensure the human dignity of all. For resources related to DEI, please visit SON DEI Website at Mission Statement - Diversity, Equity and Inclusion - School of Nursing - Purdue University (https://www.purdue.edu/hhs/nur/diversity/index.html) and contact the Diversity, Equity, Inclusion Committee at NursDEI@purdue.edu with any question and concerns.

Emergencies: Go to Emergency Procedure Guide (https://www.purdue.edu/ehps/emergency_preparedness/flipchart/) to read relevant information (e.g., Purdue Alert, Severe Weather) and see more information at Key Emergency Preparedness Resources (https://www.purdue.edu/ehps/emergency_preparedness/index.html). When an emergency affects course requirements or due dates, announcement will be posted and sent from Brightspace to students' @purdue.edu email. Students are expected to read their @purdue.edu email on a frequent basis.

NUR 525 Nursing Informatics Weekly Schedule
Fall 2021

Week #	Book Chapters & Key Content	Assignments & Due Dates
Week 1 8/23-8/27	Introduction • Syllabus • Publication Manual of American psychological Association (APA) 8/23 Synchronous Meet & Greet from 5-6pm (optional) in faculty's WebEx meeting room, with recording of the meeting uploaded later during the week	Assignment 1: Syllabus quiz (due 8/25) Assignment 2: Self-introduction (due 8/27) Informatics Project: Review project guidelines under "Course Content", review peers' clinical/research interests from their self-introduction, start thinking what project you'd like to work on, reach out to peers for collaboration (not graded)
Week 2 8/30-9/3	Chapter 1, 21, 23 • Nursing science & the foundation of knowledge • Nursing research • Translational research & evidence-based practice 8/30 Synchronous Meet & Greet from 5-6pm (optional) in faculty's WebEx meeting room, with recording of the meeting uploaded later during the week	Quiz 1 (due 9/1) Assignment 3: Discussion 1 (due 9/3) Informatics Project: Continue searching for informatics topics and peer collaborators (not graded)
Week 3 9/6-9/10	Chapter 2 – 4 • Information, information science & information system • Computer science & the foundation of knowledge model • Cognitive science & cognitive informatics 9/6 Labor Day: No office hour from 5-6pm, please schedule meeting by appointment	Quiz 2 (due 9/8) Informatics Project: Brainstorm for informatics topics with peer collaborators (not graded)
Week 4 9/13-9/17 Week 5 9/20-9/24	Chapter 6 – 7 • Evolution of nursing informatics • Data, information, knowledge, & wisdom (DIKW) paradigm • Nursing informatics roles & competencies	Quiz 3 (due 9/15) Informatics Project: Propose potential informatics topics (due 9/22) *(see next page for additional assignment for this module)*

	9/13 Journal Club 1: Overview of Nursing Informatics
	  (1) Cummins, M., Kennedy, R., & Carrington, J. (2021). Policy priorities in nursing informatics: The American Academy of Nursing Informatics and Technology Expert Panel in 2020. *CIN: Computers, Informatics, Nursing, 39*(3), 120-122. doi: 10.1097/CIN.0000000000000731
	  (2) Elsayed, W. A., Hussein, F. M., & Othman, W. N. (2017). Relation between nursing informatics competency and nurses' attitude toward evidence-based practice among qualified nurses at Mansoura Oncology Center. *International Journal of Nursing Didactics, 7*, 26-33. doi: 10.15520/ijnd.2017.vol7.iss6.229.26-33	

Week 6
9/27-10/1
	Chapter 9 – 11
	• Systems development life cycle & organizational decision-making
	• Administrative information systems
	• Human-technology interface
	
	9/27 Journal Club 2: The COVID-19 Pandemic
	  (1) Fernandez-Luque, L., Kushniruk, A. W., Georgiou, A., Basu, A., Petersen, C., Ronquillo, C., … & Zhu, X. (2021). Evidence-based health informatics as the foundation for the COVID-19 response: A joint call for action. *Methods of Information in Medicine, 59*(6), 183-192. doi: 10.1055/s-0041-1726414
	  (2) Atique, S., Bautista, J. R., Block, L. J., Lee, J. J., Lozada-Perezmitre, E. L., Nibber, R., … & Topaz, M. (2020). *Journal of Advanced Nursing, 76*(10), 2462-2468. doi: 10.1111/jan.14417
		Quiz 4 (due 9/29)
		
		Informatics Project: Acquire faculty's approval of informatics project topic (due 10/1)

Week 7 10/4-10/8	Chapter 13 – 15 • Workflow & meaningful use • Electronic health record (EHR) & clinical informatics • Informatics tools, patient safety, & quality outcomes 10/4 Journal Club 3: Gerontology (1) Deckro, J., Phillips, T., Davis, A., Hehr, A. T., & Ochylski, S. (2021). Big data in the veterans health administration: A nursing informatics perspective. *Journal of Nursing Scholarship, 53*(3), 288-295. doi:10.1111/jnu.12631 (2) Sherman, R. L., Judon, K. M., Koufacos, N. S., Aquino, V. M. G., Raphael, S. M., Hollander, J. T., & Boockvar, K. S. (2021). Utilizing a health information exchange to facilitate COVID-19 VA primary care follow-up for Veterans diagnosed in the community, *JAMIA Open, 4*(1), ooab020, doi: 10.1093/jamiaopen/ooab020	Quiz 5 (due 10/6) Assignment 4: Build your online presence (due 10/8) Informatics Project: Develop project content (not graded)
Week 8 10/11-10/15	Appointment with faculty to discuss Informatics project 10/11 & 10/12 October Break: No office hour from 5-6pm, please schedule meeting by appointment	Informatics Project: Continue developing project content (not graded)
Week 9 10/18-10/22	Chapter 5, 8, 12 • Ethical applications of informatics • Legislative aspects related to informatics • Electronic security 10/18 Journal Club 4: Family Health (1) Pruinelli, L., Farag, A., Looman, W., McKechnie, A. C., Monsen, K. A., Van Gelderen, S., Dunn-Lopez, K. (2020). The symbiotic collaboration between family nursing and data science. *CIN: Computers, Informatics, Nursing, 39*(3), 120-	Quiz 6 (due 10/20) Assignment 5: Privacy and security awareness (due 10/22) Informatics Project: Continue developing project content (not graded) *(see next page for additional assignment for this module)*

	122. doi: 10.1097/CIN.0000000000000675 (2) Lo, B., Zhang, T., Leung, K., Mehta, R., Kuziemsky, C., Booth, R. G., … & Strudwick, G. (2020). Identifying best approaches for engaging patients and family members in health informatics initiatives: A case study of the group priority sort technique. *Research Involvement and Engagement, 6*(25). 10.1186/s40900-020-00203-8	
Week 10 10/25-10/29	Chapter 17 – 18 • Using informatics to promote community/population health • Telenursing & telehealth 10/25 Journal Club 5: Pediatrics • Kartika, L., Wanda, D., & Nurhaeni, N. (2021). The Modified Pediatric Early Warning Score Innovation Project (mPEWS-InPro) mobile-based application development: Another way of monitoring a child's clinical deterioration. *Pediatric Nursing, 47*(1), 38-44.	Quiz 7 (due 10/27) Informatics Project: Submit draft informatics presentation PPT file (due 10/29)
Week 11 11/1-11/5	Chapter 19 – 20 • Nursing informatics and nursing education 11/3, 11/4, 11/5 Faculty out of office on vacation 11/1 Journal Club 6: Psychiatric/Mental Health (1) Gamble (2020). Artificial intelligence and mobile apps for mental healthcare: A social informatics perspective. *Aslib Journal of Information Management, 72*(4), 509-523. doi: 10.1108/AJIM-11-2019-0316 (2) Painter, J., Turner, J., & Procter, P. M. (2021). Understanding and accommodating patient and staff choice when implementing video	Quiz 8 (due 11/3) Informatics Project: Revise informatics presentation PPT file (not graded) *(see next page for additional assignment for this module)*

	consultations in mental health services. *CIN: Computers, Informatics, Nursing,* Online Advanced Publication. doi: 10.1097/CIN.0000000000000804	
Week 12 11/8-11/12	Chapter 22, 24 • Data mining • Bioinformatics, biomedical informatics, & computational biology Appointment with faculty to present informatics project 11/8 to 11/12 Faculty out of office to attend conferences; No office hour from 5-6pm, please schedule meeting by appointment	Quiz 9 (due 11/10) Informatics Project: Continue revising informatics presentation PPT file, or present informatics project on scheduled date with faculty (not graded, and the latter is suggested)
Week 13 11/15-11/19 Week 14 11/22-11/26	Chapter 16 • Patient engagement & connected health Appointment with faculty to present informatics project 11/24 to 11/27 Thanksgiving Vacation 11/15 Journal Club 7: Diversity, Equality, and Inclusion • Brewer, L. C., Fortuna, K. L., Jones, C., Walker, R., Hayes, S. N., Patten, C. A., & Cooper, L. A. (2020). Back to the future: Achieving health equity through health informatics and digital health. *JMIR Mhealth and Uhealth, 8*(1), e14512. doi: 10.2196/14512	Quiz 10 (due 11/17) Informatics Project: Present informatics project on scheduled date with faculty (due 11/23) Informatics Project: Submit peer-evaluation for team members (due 11/26)
Week 15 11/29-12/3 Week 16 12/6-12/10	Chapter 25, 26 • The art of caring in technology laden environment • Reflection and future of nursing informatics	Quiz 11 (due 12/8) Assignment 6: Discussion 2 (due 12/10) Informatics Project: Submit peer review (due 12/10)

The above schedule is subject to change. Readings and due date for assignments or quizzes may also vary given progress in the course. The faculty and the school reserve the right to revise this syllabus, verbally or in writing. Students are responsible for materials indicated above, whether explicitly discussed in class or not. It is also the students' responsibility to follow the "Announcements" section of the course website on Brightspace.