MONTANA STATE UNIVERSITY - BOZEMAN
COLLEGE OF NURSING / COLLEGE OF ENGINEERING
NRSG 608/EIND 506: Design of Healthcare Delivery Systems
Spring 2018

Credits: 3 credit lecture

Delivery Methods: Asynchronous: Brightspace LE, weeks 1-16
                           Synchronous: Videoconference or Teleconference, week 1

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Pre-Requisite Courses: NRSG 604 (for nursing students), EIND 458 (for IE students), or instructors' permission. Students are encouraged to contact the instructors as the need arises (e.g., phone, email, Brightspace LE)

Course Description:
The purpose of NRSG608/EIND506 is to introduce the role of Clinical Nurse Leader (CNL), Doctor of Nursing Practice (DNP) and Industrial (or systems) Engineer (IE) in healthcare; examine the major systems within healthcare organizations which affect care delivery; and provide experience and tools for working effectively in interprofessional teams to redesign healthcare delivery systems. This interprofessional course targets nursing students pursuing certification as a CNL or DNP, and IE students who intend to work in the healthcare sector. Students will learn strategies for analyzing and improving processes, coordinating interdisciplinary healthcare teams, enhancing healthcare quality management, and reducing health risk through medical error elimination.

Course Objectives:
1. Examine the roles of the Clinical Nurse Leader, Doctor of Nursing Practice and Industrial Engineer as each relates to organizational leadership, effective advocacy, and the delivery and integration of care.

2. Evaluate core hospital systems which drive the quality, timeliness, and cost of care using systems engineering concepts and tools.

3. Examine issues related to coordinating and leading healthcare teams in collaborative problem-solving.

4. Compare quality, risk management, and patient safety strategies among select client populations.

5. Describe interrelationships among clinical information systems, communication accuracy, error reduction, and healthcare system operations.

6. Assess internal and external forces including cultural factors that affect healthcare delivery across various settings.

Course Texts:
Required:
   1) Nelson, E. C., Batalden, P. B., & Godfrey, M. M. (2007). *Quality by design: A clinical microsystems approach.* San Francisco: Jossey-Bass. (Appendices available online at www.clinicalmicrosystem.org)
   2) Nelson, E. C., Batalden, P. B., Godfrey, M. M., & Lazar, J. S. (2011). *Value by design: Developing clinical microsystems to achieve organizational excellence.* San Francisco: Jossey-Bass
   3) Assigned Web readings.

Recommended:
   1) Sobek, D. K. & Smalley, A. (2008). *Understanding A3 Thinking: A Critical Component of Toyota's PDCA Management System.* New York: Productivity Press.
   2) American Psychological Association (2009). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.
   3) IOM (Institute of Medicine) (2011). *Engineering a learning healthcare system: A look at the future: Workshop summary.* Washington, DC: The National Academies Press. (available online).
   4) Niles, N. J. (2015). Basics of the U. S. health care system. Burlington, MA: Jones & Bartlett.

General Course Plan
This course is designed to promote exploration and reflection of content relevant to the CNL, DNP and engineering roles in the healthcare delivery system, and is delivered using primarily asynchronous format (Brightspace LE). Content has been divided into learning circles that span 1-2 weeks. Collay, Dunlap, Enloe and Gagnon (1998) describe learning circles as small communities of learners who come together to support each other in the process of learning. This collaborative approach to learning is an especially effective way to build the community of learning in the virtual classroom. The learning circle provides the structure that will enable students and faculty to examine selected content and issues introduced in this course and share their knowledge with other students through guided discussion and reflection. Each learning circle includes an introduction of the topic with learning objectives, inquiry questions that guide students into the literature, selected readings, discussion or other activities, strategies for linking learning to daily life, and suggestions for additional reading.

Assignment Guidelines:
The assignments for this course are designed to help students achieve the course objectives. Criteria for each of the assignments are described below. Grading will be based on the percentage indicated in parentheses. All written work is to be prepared in APA format, 6th edition. Assignments are due on the date and time specified in the class calendar. Late papers will not be accepted without prior consent of the faculty.

1. Class participation (20%):

Students are expected to be actively engaged in all discussions and activities guided by the learning circles as well as pre and post assessments. Display of preparation through reading / thinking, quality and timeliness of initial submitted work, and level and timeliness of of participation, and collegiality of dialog provides the basis for evaluation. Peer review may also be considered in the evaluation.

2. Reflective Essay (10%):
At the end of the semester you will be required to submit a reflection essay that details your experience in the course, how you have met the objectives of the course, as well as provide feedback. The essay must be submitted to Brightspace, due Sunday of week 15, by 11:59 pm MST.

3. Learning Circles (70%):
There will be a total of 9 Learning Circles in this course. As shown on the course schedule below, some learning circles will be two weeks in length, allowing for time for clinical observation, discussion and interprofessional interaction. They require you to work collaboratively as well as learn about a particular process through readings and observation. When clinical observation is required, nurses must arrange to do them at their own facilities; the instructors will arrange tours for engineering students. For these learning circles, nurses will be tasked with applying a systems engineering tool to the system observed (current operation), identifying improvement opportunities, and visualizing an improved way of working. Engineers will be tasked with helping nurses apply the tools correctly and working collaboratively to develop better delivery systems designs.

Evaluation:

Participation	20%
Reflective Essay	10%
Learning Circles	70%
Total	100%

Grading:

A =	90 – 100%
B =	80 – 89.9%
C =	70 – 79.9%
D =	60 – 59.9%
F =	< 60%

Course Policies:

Assignments:
Assignments are due no later than midnight on the designated date. Late submissions will not be accepted without prior consent of the faculty. A maximum of 10% reduction in grade will be taken for errors in grammar, style, spelling, and documentation of all written work.

All academic papers must be formatted using APA format (6th edition) unless otherwise noted on the grading criteria. For information or guidance on APA format:
- American Psychological Association. (2001). Publication manual of the American Psychological Association (6th ed.). Washington, DC.
- Some reference copies of this text are available in the MSU libraries and Colleges of Nursing.
- Students may also consult the APA website at: http://www.apastyle.org

Plagiarism:
The use of another student's work, or the incorporation of work not one's own without proper credit, may constitute course failure. Please be careful to cite all of your references within the text of your scholarly papers to diminish the risk of plagiarism.

Class Participation:
Attendance in synchronous and asynchronous discussions is expected and monitored per MSU policy. Students are responsible for content covered in all required readings AND discussions. Participation

includes completing synchronous and asynchronous Brightspace activities and participating <u>actively</u> in all discussions. Independent work is required for completion of this course. While the sharing of information through joint discussion and study is encouraged, the submission of another's work as one's own is not acceptable. **Evidence of academic misconduct on the part of the student may warrant a failure for the course as well as possible dismissal from MSU. This policy is outlined in the Student Conduct Code located at: http://www.montana.edu/policy/student_conduct/**

Students are responsible for their own learning. Faculty act as mentors and facilitators in the learning process. The student must be an active participant in the learning process in order for learning to occur. Collaborative learning takes place by thoughtful analysis, synthesis, and discussion of class assignments, relevant previous experiences, and literature review.

<u>Brightspace Expectations:</u>
This course is computer-enhanced using Brightspace LE (formerly Desire to Learn, or D2L). The rationale for enhancing the course in this way is to permit students to interact with each other asynchronously regarding the course content and facilitate communication and evaluation between instructor and students. New Learning Circles will be posted on Mondays to Brightspace throughout the semester.

It is assumed you are proficient with Brightspace. For help with using the different features of this learning environment, see MSU's Brightspace LE Help page: http://www.montana.edu/ecat/help/index.html. Any difficulties you may have with the platform should be submitted to the Brightspace LE support team. One of the course instructors should also be notified when access to Brightspace is problematic to ensure continued participation and timely submission of assignments.

All course email from the instructor will be sent via the Brightspace email system. Students should check their Brightspace email regularly. For instructions on how to forward Brightspace LE email to an external email account, see: http://www.montana.edu/ecat/help/email/index.html. Students may contact the instructor regarding course-specific questions via Brightspace. However, it is strongly encouraged that students *communicate emergent information (e.g., regarding absences, delayed submission of assignments) by phone to the instructor where voice mail is available.* Grades will be posted to individual students via Brightspace.

Respect for the opinions and comments of others should be demonstrated at all times. Students are to use established confidentiality precautions during all discussions, including online discussions. Meaningful responses are those which are thoughtful and accurate, seek clarification, offer a different perspective, provide supporting data, expand on the discussion, etc.

<u>Confidentiality Guidelines for Written Assignments</u>
The same rules governing confidentiality in your undergraduate and graduate clinical courses or practice apply in this course. Do not use proper names of any kind and use initials of clients to protect confidentiality. You do not need to falsify information but speaking in generalities such as "lives in a rural western town" or "works for a fast food restaurant" or "admitted to an acute care mental health facility" will protect identity. Do not use specific dates, instead state patient's length of stay such as "on day 3 of admission". Avoid use of patient's birthday; instead simply report the age or a general age such as "teenager or male in his 40's". Ask yourself the question "Is it important that this <u>specific</u> information be included in the paper or discussion to make my point clear?" Any information that would allow the listener/reader to track information to a person is considered a breach of confidentiality. Failure to adhere to this on graded work may result in loss of points of a full letter grade.

Course Content

Introduction: Forces influencing healthcare delivery systems in the US

Structure of the US Healthcare System
        Interprofessional Team Roles   Organizational structures/departments
        Scope of Practice/Delegation   Interprofessional care planning
        Collaborative problem-solving   Teamwork
        Patient Flow   Admissions processes
        Medication delivery systems   Reimbursement Strategies
        Supplies management   Regulation/Documentation
        Billing / revenue cycle

Healthcare Systems Re-engineering
        Systematic problem-solving   Process mapping
        Data visualization and analysis   Flow and work design principles
        Risk assessment and analysis   Informatics/Outcomes Management

Systems Engineering Tools & Concepts
        A3 Reports and problem-solving   PDSA / PDCA / Deming Cycle
        Value stream mapping   Flow charts / swim lane charts
        Fishbone diagrams   5 Why's
        Pareto charts   Checklists
        Descriptive statistics   Data visualization
        Kanban / pull systems   Visual management

2018 Course Schedule

Date	Course Content	Key LC Activities
Week 1 1/10-1/14	Course Introduction	**Nursing/Engineering Knowledge Pre-Test** *Videoconfrence 1/12 (2pm-3pm) (optional)*
Week 2 1/15-1/21	LC #1: Forces Influencing Healthcare	**Lecture & Readings** **Discussion #1**
Week 3 1/22-1/28	LC #2: The Structure of Healthcare Delivery Systems, and Microsystem Assessment Overview	**Leccture & Readings** **Discussion #2**
Weeks 4-5 1/29-2/11	LC #3: Patient flow + value stream mapping	**Assigned readings** **Clinical observation** **Assignment: Value Stream Mapping**
Weeks 6-7 2/12-2/25	LC #4: Admissions and Discharge + flow charts	**Lecture & Readings** **Clinical observation** **Assignment: Flow chart**
Weeks 8-9 2/26-3/11	LC #5: Supplies Management (OR focus) + Pareto and kanban	**Readings** **Clinical observation** **Assignment: Discussion #3**
3/12-3/18	*Spring Break*	
Weeks 10-11 3/19-4/2	LC #6: Medication delivery (inpatient focus) + root cause analysis tools	**Lecture & Readings** **Clinical observation** **Assignment: Root cause analysis**
Weeks 12-13 4/2-4/15	LC #7: Laboratory testing (ER focus) + visual management	**Readings** **Clinical observation** **Assignment: Design**
Week 14 4/16-4/22	LC #8: Problem solving for continuous improvement + A3 reports	**Readings** **Assignment: A3 summary report**
Week 15 4/23-4/29	LC #9: Interprofessional Team Roles, Leadership & Collaboration	**Lecture & Readings** **Reflective essay**
Week 16 4/30-5/4	Finals Week – Post-test	