CURRICULUM COMMITTEE REPORT

The Curriculum Committee met on May 3rd, 2022 and is recommending the following courses to the Graduate Board for approval at its May 12th meeting.

New Courses:

KPE 641 General Medical Conditions & Pharmacology

MET 540 Lean Six Sigma

Modifications:

SIE 505 Formal Foundations for Information Science

Special Memo:

Please see memo with several ECO prerequisite changes that were approved at the recent Curriculum Committee meeting.



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New Graduate Course Proposal

Academic Unit: Kinesiology, Physical Ed, Athletic Training						
Course Designator & Number: <u>KPE 641</u> Effective Semester: <u>Fall 2024</u>						
Course Title: General Medical Conditions & Pharmacology						
New Course Course Type:						
Proposed Catalog Description: KPE 641 – General medical conditions and pharmacology is an upper-level course designed to expose health care providers to non-orthopedic conditions that may be regularly encountered in an active population. Attention will be focused on illnesses and systemic conditions that may preclude or limit someone from athletic participation, including (but not limited to) conditions affecting the cardiovascular, endocrine, genitourinary, reproductive, and respiratory systems. Pharmacological information will also be presented with the focus of educating health care practitioners on these agents use (and potential abuse) for treatment of various conditions.						
Course Prerequisites: KPE 522 - Clinical Examination II						
Credit Hours: <u>3</u> Component: Lecture						
Cross-Listed Course:						
Text(s) Planned for Use: 1. Gould's Pathophysiology for Health Professions VanMeter & Hubert, Elsvier Publishing						
2. Pharmacology Clear and Simple Watkins, FA Davis Publishing						
3. NATA Position Statements as assigned (Freely Available Online).						
Dr Christopher Nightingale, Associate Professor of Athletic Training and Physical Education. This course will be considered part of Dr Nightingale's regular teaching load.						
Reason for new course: Changes in national accreditation for athletic training programs require students to graduate from a graduate degree program in order to be eligible to sit for the national certification exam. This course will be part of the new graduate program that will replace the baccalaureate level major that currently exists.						
Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?						
No. The academic unit will not request additional resources for this course						

Additional Resources:

Course Frequency:	Course will be offered annually during the fall semester for second year athletic training graduate program m	iajors.
Can this course be	repeated for credit? NO	
Total number of cre	edits allowed:	
Total number of co	mpletions allowed:	
Can students enrol	l multiple times in a term? <u>NO</u>	
Mode of Instruction	n:	

Endorsements

Leader: robert.lehnhard@maine.edu Approved	Date: 03/15/22
College CC Chair: rebecca.buchanan@maine.edu Approved	Date: 03/29/22
College Dean:arthur.artesani@maine.edu Approved	Date: 04/19/22
Leader:	Date:
College CC Chair:	Date:
College Dean:	Date:
DLL: Dat	te:

KPE 641 General Medicine & Pharmacology





COLLABORATION ENGAGEMENT

Mission Statement: Drawing on a rich tradition of excellence, the College of Education and Human Development at Maine's flagship university is committed to leading innovation in Maine's Pre-K-12 schools, higher education institutions, and agencies that support academic, cognitive, physical, social and emotional development. We promote effective teaching and learning, identify critical issues, conduct research, and disseminate findings. Collaborating with external partners and experts across the University of Maine, we prepare our graduates to engage in ethical conduct, reflective practice, meaningful inquiry, and data-driven decision making in order to meet the increasingly diverse needs of our state and the world in which we live.

3 credits

In-Person Format

Prerequisites: KPE 522

Classroom – Wes Jordan Center – Rm 26 Day and Time – XXXXX

Course Description: KPE 641 – General medical conditions and pharmacology is an upper level course designed to expose health care providers to non-orthopedic conditions that may be regularly encountered in an active population. Attention will be focused on illnesses and systemic conditions that may preclude or limit someone from athletic participation, including (but not limited to) conditions affecting the cardiovascular, endocrine, genitourinary, reproductive, and respiratory systems. Pharmacological information will also be presented with the focus of educating health care practitioners on these agents use (and potential abuse) for treatment of various conditions.

Instructor: Dr Christopher Nightingale EdD ATC Office: Lengyel Hall 112 Phone Number: (207) 581 – 2463 E-mail: christopher.nightingale@maine.edu Office Hours: Mo 1-4pm, Tu 1-3pm or by appointment

Textbooks:

(Required) **Gould's Pathophysiology for Health Professions** VanMeter & Hubert, Elsvier Publishing

Pharmacology Clear and Simple Watkins, FA Davis Publishing

NATA Position Statements as assigned.

Internet: Materials and course updates will be provided via the BrightSpace learning management system.

University of Maine COVID-19 Syllabus Statement

COVID-19 is an infectious disease caused by the coronavirus SARS-CoV-2. The virus is transmitted person-to-person through respiratory droplets that are expelled when breathing, talking, eating, coughing, or sneezing. Additionally, the virus is stable on surfaces and can be transmitted when someone touches a contaminated surface and transfers the virus to their nose or mouth. When someone becomes infected with COVID-19 they may either have no symptoms or symptoms that range from mild to severe and can even be fatal. During this global pandemic, it is imperative that all students, faculty, and staff abide by the safety protocols and guidelines set forth by the University to ensure the safety of our campus. All students are encouraged to make the Black Bear Cares Pact to protect the health of themselves, the health of others, and the College of Our Hearts Always.

Black Bears Care Pact: https://umaine.edu/return/black-bears-care/

Symptom checking: The symptoms of COVID-19 can range from mild to severe, and even people with mild symptoms may transmit the virus to others. Students are encouraged to use the symptom checking app each day before attending class or moving about campus and follow the recommendation prompted within the app. Students should monitor for the following symptoms daily: fever (temperature >100.4F/38.0C) or chills, new cough, loss of taste or smell, shortness of breath/difficult breathing, sore throat, diarrhea, nausea, or vomiting, or the onset of new, otherwise unexplained symptoms such as headache, muscle or body aches, fatigue, or congestion/runny nose.

Physical distancing: Students need to make every effort to maintain physical distancing (6 feet or more) indoors and outdoors including within classrooms. The University classrooms and physical spaces have been arranged to maximize physical distancing. Follow the traffic patterns outlined in each building and outdoor space to avoid crowding. If students are in an academic setting (i.e. clinical or lab class) that requires them to reduce physical distancing, they should follow the instructor's guidelines.

Face coverings: Students must wear appropriate face coverings in the classroom. Face coverings must be worn in indoor and outdoor spaces on campus unless people are alone in a room with a door closed or when they are properly physically distanced

and do not expect someone to approach them. When face coverings are removed people are placing themselves and those surrounding them at increased risk for COVID-19.

Eating and drinking in classrooms: Students may not eat or drink in the classrooms and are encouraged to take their food or drink into areas designated for these purposes where they can maintain 6 feet physical distance from others.

Hand hygiene: Proper hand hygiene is an effective measure to prevent the spread of COVID-19. Students should wash their hands often with soap and water or use a hand sanitizer with at least 60% alcohol, especially after using the bathroom, before eating or drinking, and before and after going to class or university spaces such as the recreation center, library, or dining halls.

Contingency plans: Classes may be held in various formats to offer flexibility, compassion, and empathy during these unprecedented times. Under certain circumstances, students or instructors may need to miss classes or in-person classes may be disrupted. Students are expected to notify their instructor if they are unable to attend an in-person or online class but will not be penalized for missing class due to illness or the need to care for a family member affected by COVID-19. If a disruption occurs, your instructor will provide communication and contingency plans.

What to do if you have or suspect you have COVID-19: If you have symptoms of COVID-19 or have been possibly exposed to someone with COVID-19, you should stay home, not interact with others, and contact your health care provider immediately to be tested for COVID-19. You may not attend in-person classes and should suspend interactions with others until you are tested. Prior to receiving test results you should quarantine in your living area according to the Maine CDC guidelines below. Please follow the guidance of your health care professional regarding testing, quarantine, and isolation during the testing process and potential illness period.

What to do if someone you know has or may have COVID-19: If someone you know or that you have had close contact with (defined by the ME CDC as 15 mins or more within 6 feet or less) has tested positive for COVID-19, you should stay home and quarantine according to the guidance of the ME CDC, contact your health care provider, and continue to monitor for symptoms. You may be required to quarantine and/or be tested for COVID-19 under these circumstances. You may also have been exposed to COVID-19 by someone you do not know, and it is possible that you could be contacted through contact tracing to determine if you were exposed. Everyone should respond to these confidential questions to ensure the safety of themselves and those around them.

Maine CDC guidelines:

https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/airborne/coronavirus/generalinformation.shtml

If you have questions or would like additional information related to the University of Maine COVID-19-specific policies or procedures please use the following sources:

University Webpages: umaine.edu/return and together.maine.edu

COVID-19 Information line: 207.581.2681

Emergency Operations Center Email Contact: <u>umaine.alerts@maine.edu</u>

Student Learning Outcomes

At the completion of this course, you will be able to....

1. Students will be able to utilize health care delivery strategies for use with general medical conditions in active populations. (CAATE Standard 57) Assessment Items: Quiz Items

2. Students will be able to articulate the roles of other health care providers in the care

of active patients. (CAATE Standard 61) Assessment Items: Quiz Items, Test Items

3. Students will be able to outline elements of appropriate professional practice, including, but not limited to, HIPAA, FERPA, Universal Precautions, and OSHA BBP Standards. (CAATE Standard 66)

Assessment Items: Quiz Items, Test Items

4. Students will be able to present elements of a care plan for general medical conditions including, but not limited to, integumentary system, HEENT, and infectious disease. (CAATE Standard 69)

Assessment Items: Quiz Items, Test Items

5. Students will be able to evaluate and manage assessment of acute general medical conditions, including but not limited to: anaphylaxis, hemorrhage, and diabetes. (CAATE Standard 70)

Assessment Items: Quiz Items, Test Items

6. Students will be able to evaluate general medical conditions. (CAATE Standard 71) **Assessment Items:** Quiz Items, Test Items

7. Students will be able to identify necessary steps to perform or obtain appropriate diagnostic or laboratory tests. (CAATE Standard 72)

Assessment Items: Quiz Items, Test Items

8. Students will be able to identify appropriate pharmacological agents involved in the treatment of common general medical conditions found in active populations. (CAATE

Standard 74).

Assessment Items: Quiz Items, Test Items

9. Students will be able to describe appropriate routes of administration for different medications. (CAATE Standard 75)

Assessment Items: Quiz Items, Test Items

10. Students will be able to develop strategies to mitigate risk for non-orthopedic conditions, including adrenal disease, CV disease, and diabetes. (CAATE Standard 79) **Assessment Items:** Quiz Items, Test Items

11. Students will be able to demonstrate knowledge of the effects of misuse/abuse of pharmacological agents. (CAATE Standard 84) **Assessment Items:** Quiz Items, Test Items

12. Students will be able to explain the role of a supervising physician in the athletic training setting. (CAATE Standard 90)

Assessment Items: Quiz Items, Test Items

CAATE 2020 Standards associated with this course:

Standard 61: Practice in collaboration with other health care and wellness professionals.

Standard 66: Practice health care in a manner that is compliant with the BOC Standards of Professional Practice and applicable institutional/organizational, local, state, and federal laws, regulations, rules, and guidelines. Applicable laws and regulations include (but are not limited to) the following:

-Requirements for physician direction and collaboration

- -Mandatory reporting obligations
- -Health Insurance Portability and Accountability Act (HIPAA)

-Family Education Rights and Privacy Act (FERPA)

-Universal Precautions/OSHA Bloodborne Pathogen Standards

-Regulations pertaining to over-the-counter and prescription medications

Standard 69: Develop a care plan for each patient. The care plan includes (but is not limited to) the following:

-Assessment of the patient on an ongoing basis and adjustment of care accordingly

-Collection, analysis, and use of patient-reported and clinician-rated outcome measures to improve patient care

-Consideration of the patient's goals and level of function in treatment decisions

Standard 57: Identify health care delivery strategies that account for health literacy and a variety of social determinants of health.

-Discharge of the patient when goals are met or the patient is no longer making progress

-Referral when warranted

Standard 70: Evaluate and manage patients with acute conditions, including triaging conditions that are life threatening or otherwise emergent. These include (but are not limited to) the following conditions:

• Cardiac compromise (including emergency cardiac care, supplemental oxygen, suction, adjunct airways, nitroglycerine, and low-dose aspirin)

• Respiratory compromise (including use of pulse oximetry, adjunct airways, supplemental oxygen, spirometry, meter-dosed inhalers, nebulizers, and bronchodilators)

•Conditions related to the environment: lightning, cold, heat (including use of rectal thermometry)

- Cervical spine compromise
- Traumatic brain injury

• Internal and external hemorrhage (including use of a tourniquet and hemostatic agents)

• Fractures and dislocations (including reduction of dislocation)

Anaphylaxis (including administering epinephrine using automated injection device)

- Exertional sickling, rhabdomyolysis, and hyponatremia
- Diabetes (including use of glucometer, administering glucagon, insulin)

• Drug overdose (including administration of rescue medications such as naloxone)

- Wounds (including care and closure)
- Testicular injury
- Other musculoskeletal injuries

Standard 71: Perform an examination to formulate a diagnosis and plan of care for patients with health conditions commonly seen in athletic training practice. This exam includes the following:

- Obtaining a medical history from the patient or other individual
- Identifying comorbidities and patients with complex medical conditions
- Assessing function (including gait)
- Selecting and using tests and measures that assess the following, as relevant to the patient's clinical presentation:
 - o Cardiovascular system (including auscultation)
 - o Endocrine system
 - o Eyes, ears, nose, throat, mouth, and teeth
 - o Gastrointestinal system
 - o Genitourinary system
 - o Integumentary system
 - o Mental status
 - o Musculoskeletal system
 - o Neurological system

- o Pain level
- o Reproductive system
- o Respiratory system (including auscultation)
- o Specific functional tasks
- Evaluating all results to determine a plan of care, including referral to the appropriate provider when indicated

Standard 72: Perform or obtain the necessary and appropriate diagnostic or laboratory tests including, but not limited to, imaging, blood work, urinalysis, and electrocardiogram to facilitate diagnosis, referral, and treatment planning.

Standard 74: Educate patients regarding appropriate pharmacological agents for the management of their condition, including indications, contraindications, dosing, interactions, and adverse reactions.

Standard 75: Administer medications or other therapeutic agents by the appropriate route of administration upon the order of a physician or other provider with legal prescribing authority.

Standard 79: Develop and implement strategies to mitigate the risk for long-term health conditions across the lifespan. These include (but are not limited to) the following conditions:

-Adrenal diseases -CV disease -Diabetes -Neurocognitive disease -Obesity -Osteoarthritis

Standard 84: Educate clients/patients about the effects, participation consequences, and risks of misuse and abuse of alcohol, tobacco, performance-enhancing drugs/substances, and over-the-counter, prescription, and recreational drugs.

Standard 90: Establish a working relationship with a directing or collaborating physician.

Grading Criteria

You will earn a grade in accordance with the University of Maine grading policy:

A = 93-100%, A- = 90-92% B+=86-89%, B=83-85%, B-=80-82% C+=76-79%. C=73-75%, C-=70-72% D+=66-69%, D=63-65%, D-=60-62% F < 60% AT Majors: Minimum of B - required for program advancement

Assessment and Evaluation

Attendance & Participation	100 points
Quizzes (4x25)	100 points
Tests (3x100)	300 points

Total: 500 points

Attendance/Participation Policies

This course utilizes a sequential penalty for counting attendance. The first class you miss will count as one absence. The second class you miss will count twice as much. The third class you miss will count three times as much as one absence. Missing more than one or two classes with unexcused absences will significantly hurt your grade.

<u>Quizzes</u>

Quizzes will be held periodically to assess student learning and serve as a fidelity check for understanding of readings and discussion points.

<u>Tests</u>

Written tests will be held twice mid semester and once during final exam week to assess student learning of critical concepts.

Make-up/Missed Work Policies

If you miss the due date for an assignment, you are required to communicate with the instructor and determine an appropriate plan for completing work. Failure to do so in a timely fashion will lead to a reduced grade and/or inability to turn in the assignment.

Electronic Devices Policy

Laptops, Tablets, and Smartphones are allowed for class related usage only. If you are caught utilizing electronic resources for non-class purposes, you will lose attendance and participation points for that day's class. Bring a hard copy of your notes and your textbooks to each class.

UNIVERSITY POLICIES

https://umaine.edu/citl/teaching-resources-2/required-syllabus-information/

- Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.
- Students Accessibility Services Statement: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (Dr Nightingale) privately as soon as possible.
- **Course Schedule Disclaimer (Disruption Clause):** In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.
- Observance of Religious Holidays/Events: The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Sexual Discrimination Reporting: The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination involving members of the campus, your teacher is required to report this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources: For *confidential resources on campus*: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000. For *confidential resources off campus*: Rape Response Services: 1-800-310-0000 or Partners for Peace: 1-800-863-9909. Other resources: The resources listed below can offer support but may have to report the incident to others who can help: For *support services on campus*: Office of Sexual Assault & Violence Prevention: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

Confidentiality Statement: All academic records of students are maintained in the highest of confidence as directed by FERPA (Family Educational Rights and Privacy Act). For more information on the University of Maine FERPA Policy, please click on the following link <u>http://catalog.umaine.edu/content.php?catoid=50&navoid=1001</u>

Diversity: Ours is a diverse nation founded upon the protection of rights and liberties regardless of race, ethnicity, socio-economic status, gender, religion, exceptionalities, language, and sexual orientation. The Council for the Accreditation of Educator Preparation (CAEP), identifies diversity as two groups: one being individual differences (e.g., personality, interests, learning modalities, and life experiences), and the other being group differences (e.g., race, ethnicity, ability, gender identity, gender expression, sexual orientation, nationality, language, religion, political affiliation, and socio-economic backgrounds) and expects that diversity will be a pervasive characteristic of any quality preparation program. Other identity groups include, but are not limited to, age, community, family status, institutional affiliations. Schooling, especially public schooling, continues to have a central role in educating our nation's citizens for life in this diverse and pluralistic society. Choosing to teach in public schools means accepting the moral and ethical responsibilities inherent in building a strong democratic republic. In this course you will have many opportunities to examine your beliefs regarding diversity and the challenges of providing equitable and fair educational opportunities for all.

Use of Electronic Communications: All users at the University of Maine are expected to use network systems with proper regard for the rights of others and the University. For more information on the University of Maine Electronic Communications Policy, please click on the following link <u>http://www.umaine.edu/it/policies/communication.php</u>

Incomplete Grades: I, for "Incomplete." This grade means that, in consultation with the student, the instructor has postponed the assignment of a final grade to allow the student to complete specific work not turned in before the end of the semester. Instructors assign the "I" grade only when they are persuaded that events beyond the student's control prevented the completion of assigned work on time and when the student has participated in more than 50% of the class.

A grade of I (Incomplete) is assigned if a student has been doing work of acceptable quality but, for reasons satisfactory to the instructor, has not completed all the work required to earn credit by the end of the semester or session.

The work must be completed and submitted to the instructor by the date agreed to with the instructor, but not later than one year (i.e., 12 months) from the end of the semester or session in which the incomplete was granted.

An I remains on the transcript permanently if not resolved or if a written request for an extension is not approved within the allotted time period for removing the incomplete. The request for an exception to regulation, listing the circumstances necessitating the extension, the work that remains unfinished and a specific deadline for completion, must be approved by the instructor, the student's advisor (for degree students), Graduate Program Coordinator, and Dean. An extension will be granted only under unusual circumstances. For grades of I, it is the student's responsibility to reach and maintain an understanding with the instructor concerning the timely completion of the work. Source: https://studentrecords.umaine.edu/files/2013/03/2012-2013-Undergraduate-Cat_alog.pdf

Non-Discrimination and Non-Sexist Language: The University of Maine does not discriminate on the grounds of race, color, religion, sex, sexual orientation, national origin or citizenship status, age, disability, or veteran status. Questions and complaints about discrimination should be directed to the Director of Equal Opportunity, 101 North Stevens Hall, 581-1226.

The University of Maine has made a firm public commitment to non-sexist language in all its classrooms and communications. This course will put that policy into practice by using both masculine and feminine terms, where both genders are intended, rather than so-called generic masculine terms. For further information, see http://www.umaine.edu/womensstudies/home/non-sexist-language-policy/

College of Education and Human Development Policies:

Basic Needs Security

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students (visit their office on the 3rd floor of the Memorial Union or call 581-1406) or the associate dean for academic services for the College of Education and Human Development (room 101 Shibles or call 581-2412). Furthermore, please notify the professor if you are comfortable doing so.



Course Schedule:

Week One:	Introduction, Documentation, Pharmacokinetics
Week Two:	Integumentary System, Pharmacodynamics
Week Three:	Quiz #1, HEENT Conditions: recognition, treatment
Week Four:	Exam #1, Anti-inflammatory drugs
Week Five:	Infectious Disease: recognition, treatment
Week Six:	Quiz #2, Gastrointestinal Conditions: recognition, treatment
Week Seven:	Genitourinary Conditions: recognition, treatment
Week Eight:	Musculoskeletal Conditions: recognition, treatment
Week Nine:	Quiz #3, Pulmonary Conditions: recognition, treatment
Week Ten:	Exam #2, drug treatment of persistent pain
Week Eleven:	Neurological Conditions: recognition, treatment
Week Twelve:	Psychiatric Conditions: recognition, treatment
Week Thirteen:	Quiz #4, Endocrine Conditions: recognition, treatment
Week Fourteen:	Make Up Date / Review of the course
Week Fifteen:	Exam #3



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New Graduate Course Proposal

Academic Unit: Engineering Technology
Course Designator & Number: MET 540 Effective Semester: Spring 2024
Course Title: Lean Six Sigma
Course Type:
Proposed Catalog Description: This course introduces engineering and engineering technology students to Lean Manufacturing and Six Sigma continuous improvement methodologies via lectures, independent assignments, and experiments using discipline-independent processes. Topics will include the 8 forms of waste; value stream maps; the DMAIC model; Gage R&R hypothesis testing; Ishikawa diagrams; and Design of Experiments (DOE). This course is being cross listed with MET 440. MET 440 and MET 540 can not both be taken for academic credit.
Course Prerequisites: MAT 127: Calculus II or instructor approval
Credit Hours: <u>3</u> Component: <u>Lecture</u>
Cross-Listed Course: MET 440
Text(s) Planned for Use: 1.P.S. Pande, R.P. Neuman, and R.R. Cavanagh, The Six Sigma Way Team Fieldbook: An implementation guide for process improvementeams, New York, NY: McGraw-Hill, 2002. 2.M.L. George, D. Rowlands, M. Price, and J. Maxey, The Lean Six Sigma Pocket Toolbook, New York, NY: McGraw-Hill, 2005. 3.Quality Council of Indiana, Certified Six Sigma Green Belt (CSSGB) Primer, 3rd Ed., West Terre Haute, IN: QCI, 2014.
Course Instructor: Brett Ellis
Reason for new course: MET 540 will be co-listed with MET 440 as a graduate level course for the Engineering Management Track o the MBA.
Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?
No. The academic unit will not request additional resources for this course

Additional Resources:

course Frequency: once a year and there is no overload.
Can this course be repeated for credit? NO
Total number of credits allowed:
Total number of completions allowed:
Can students enroll multiple times in a term? NO Mode of Instruction: Hybrid/Blended

Endorsements

Leader: wmanion@maine.edu Approved	Date:	10/06/21
college cc chair: musavi@maine.edu Approved	Date:	11/02/21
college Dean: danah@maine.edu Approved	Date:	11/04/21
Leader:	Date: _	
College CC Chair:	Date:	
College Dean:	Date:	
DLL:	te: <u>02</u> /	/03/22

MET 440/540: Lean Six Sigma Spring 2022 Syllabus

COURSE AND INSTRUCTOR INFORMATION

Credits:	3 Semester Credits
	<u>NOTE</u> : MET 440 and MET 540 may not both be taken for academic credit.
Prerequisites:	MAT 127: Calculus II or instructor approval
Days/Times:	Monday & Wednesday: 4:00 – 5:30 PM
Location:	BD 310 and remote
Instructor:	Brett D. Ellis, Ph.D., P.E., Associate Professor, Mechanical Engineering Technology
Office:	Boardman Hall, Room 215A
E-mail:	brett.ellis@maine.edu
Phone:	(207) 581-2134
Office hours:	MW $10 - 11$ AM; F $9 - 11$; and by appointment

COURSE DESCRIPTION AND OUTCOMES

Course Description: This course introduces engineering and engineering technology students to Lean Manufacturing and Six Sigma continuous improvement methodologies via lectures, independent assignments, and experiments using discipline-independent processes. Topics will include the 8 forms of waste; value stream maps; the DMAIC model; Gage R&R; hypothesis testing; Ishikawa diagrams; and Design of Experiments (DOE).

Course Outcomes: A student successfully completing MET 440/540 "Lean Six Sigma" will be able to:

- 1. Identify the 8 types of muda (*i.e.*, wastes) and appropriate countermeasures;
- 2. Demonstrate knowledge of the five stages of the DMAIC model;
- 3. Determine the measurement requirements for a simple project and setup a data collection process;
- 4. Perform and interpret a Gage R&R study;
- 5. Perform and interpret a capability study;
- 6. Design, conduct, and interpret statistical tests, including one-sample t-test, two-sample proportion test, and an ANOVA test;
- 7. Design and conduct a Design of Experiments; and
- 8. Prepare and interpret control charts and determine if a process is in or out of control.

TEXTBOOKS AND COURSE MATERIALS

Required textbooks:

- 1. P.S. Pande, R.P. Neuman, and R.R. Cavanagh, <u>The Six Sigma Way Team Fieldbook: An implementation</u> guide for process improvement teams, New York, NY: McGraw-Hill, 2002.
- 2. M.L. George, D. Rowlands, M. Price, and J. Maxey, <u>The Lean Six Sigma Pocket Toolbook</u>, New York, NY: McGraw-Hill, 2005.
- 3. Quality Council of Indiana, <u>Certified Six Sigma Green Belt (CSSGB) Primer</u>, 3rd Ed., West Terre Haute, IN: QCI, 2014.

Suggested materials:

4. Quality Council of Indiana, <u>Certified Six Sigma Green Belt (CSSGB) Online Practice Exam</u>, West Terre Haute, IN: QCI, 2022.

Potential auxiliary materials:

- Quality Council of Indiana, <u>Certified Six Sigma Green Belt (CSSGB) Solutions</u>, 3rd Ed., West Terre Haute, IN: QCI, 2014.
- Software: Viscosity VPN and Minitab 19 (both provided to students in this course)

Brightspace: Brightspace is required for this class. If you do not have "MET440-0001: Lean Six Sigma (Spring 2022)" listed in your Brightspace courses section, please contact me.

Week	Date	Topics	Reading ²
		Introduction	PNC Chpts 1-5 (70 pages)
1	Jan 17	LM: 8 types of muda, Value/Non-Value Added (V/NVA), 5S,	
1	oun: 17	visual factory	
		6σ : Statistics, normal distributions, central tendency, dispersion	
2	Inn 24	LM: Value Stream Mapping (VSM), takt time	CSSGB Chpts I-III (106 pages)
2	Jan. 24	6σ: DIMAIC model 6σ: DEFINE: VOC project selection project charter SIPOC	PNC Chpis 6-8 (55 pages)
		6σ: DEFINE: VOC, project selection, project charter, sin OC	CSSGB Chots IV-V (158 pages)
		6σ : MEASURE: types of data what to measure how many	
3	Jan. 31	measurements, baseline σ measures, capability studies.	
		DPMO, RTY	
4	Esh 7	6σ: MEASURE: sampling strategies, cost of poor quality, Gage	PNC Chpts 9-10 (64 pages)
4	Feb. /	R&R, Measurement Systems Analysis	CSSGB Chpt VI (42 pages)
		6σ: MEASURE: power and sample size, baseline measurements,	PNC Chpt 11 (6 pages)
5	Feb. 14	capability studies, DPMO, FPY, RTY	CSSGB Chpts VII-VIII (62
			pages)
		6σ : ANALYZE: Pareto charts, run charts, histograms,	PNC Chpt 12 (38 pages)
(E.I. 01	correlation, Ishikawa diagrams, scatter plots, regression,	CSSGB Chpt IX (68 pages)
6	Feb. 21	V/INVA NO CLASS on Monday, Eab 21, 2022 President's Day	
		Prolim Fram #1. I M DMAIC DEFINE MEASURE (1 hr)	
	Feb. 28	6σ ANALYZE: correlation coefficient hypothesis testing t-test	PNC Chpts 13-14 (51 pages)
7		p-test, ANOVA, part I	
0	Mar. 7	6σ: ANALYZE: ANOVA, part II	PNC Chpts 15 (29 pages)
8		LM: VSM, takt time	
9	Mar. 14	NO CLASS – Spring break	n/a
0	Mar. 21	6σ: ANALYZE (correlation coefficient, hypothesis testing, t-test,	
		p-test, ANOVA)	
		6σ: ANALYZE (correlation coefficient, hypothesis testing, t-test,	CSSGB Chpt X (54 pages)
10	Mar. 28	p-test, ANOVA)	
	A	6σ: IMPROVE (Design of Experiments, part I)	$\mathbf{DN}(\mathbf{C}) = \mathbf{DN}(\mathbf{C}) + \mathbf{D}(\mathbf{C}) + \mathbf$
	Apr. 4	6σ: IMPROVE (Design of Experiments, part II)	PNC Chpts 16-17 (35 pages)
12	Apr 11	and special cause of variation).	CSSCB Chat XI (54 pages)
12	Арі. 11	Prolim Fram #2. VSM ANALYZE IMPROVE (1 hr)	CSSOD Clipt AI (34 pages)
13	Apr 18	6σ CONTROL (interpretation of control charts)	PNC Chnt 19 (17 nages)
14	Apr 25	Advanced topics or student presentations	PNC Chpts 20-21 (33 pages)
15	May 2	Final Exam (4 hrs for certification, 2 hrs otherwise)	1110 Chpts 20 21 (55 pugos)
1: LM	= Lean Ma	nufacturing topics	

TENTATIVE COURSE SCHEDULE

 $6\sigma = \text{Six Sigma topics}$

²: PNC = Pande, Neuman, and Cavanaugh

CSSGB = Certified Six Sigma Green Belt Primer

MET 440 CERTIFICATION AND NON-CERTIFICATION TRACKS

Students may choose either a "Six Sigma Green Belt" certification track or a non-certification track. Those students choosing a "Six Sigma Green Belt" certification track must: (1) satisfactorily complete a team project; (2) earn greater than a 75% on the 4-hour Final Exam; (3) be present for at least 35 contact hours (*i.e.*, students may miss up to four 1.5-hour lectures); and (4) conduct themselves in a professional manner. Projects are expected to expose students to the five DMAIC stages or a Lean Manufacturing process improvement.

Students choosing a non-certification track will take a 2-hour Final Exam. All students must declare their intention to pursue a certification track or a non-certification track via a to-be posted Brightspace survey.

Because of the 4 certification requirements given above, students choosing the certification track are not guaranteed to be certified at the end of the course. Choice of the certification or non-certification track will not influence the grade earned within the course. In other words, a student choosing the non-certification track may or may not earn a higher grade than a student choosing the certification track.

MET 440 GRADING

Your course numeric grade will be the sum of four components with the percentage weighting shown in Table 1.

Component	Quantity	Percentage
Preliminary Exams (1 hour each)	2	40%
Comprehensive Final Exam (4 hours for certification, 2 hours otherwise)	1	30%
Homework, in-class quizzes, in-class exercises	TBD	10%
Project (sponsored project required for certification)	1	20%

Table 1. MET 440 grading rubric.

Preliminary Exams and Final: There will be two preliminary exams, and one comprehensive final exam. Neither exam grades nor the final grade will be dropped. The preliminary exams and final will not be available on a "make-up" basis except under the most extenuating of circumstances, e.g., unexpected hospitalization.

Homework: Homework will typically be assigned on a weekly basis. In addition to assigned homework, you are expected to keep up with the reading assignments given within the tentative course schedule. I suggest that you allocate at least one hour per day to read the texts.

Quizzes: Announced and unannounced quizzes will be included.

Late Work: I do not accept late homework. Quizzes cannot be made up. Exams will only be made up in the case of a verifiable emergency, *e.g.*, unexpected hospitalization.

Based upon your course numeric grade, I will assign a course letter grade per the numeric to letter grade conversion shown in Table 2.

Table 2.	Numeric to	letter grade	conversion.

Grade	GPA Points	Numeric Grade, \overline{x}	Grade	GPA Points	Numeric Grade, \overline{x}
А	4.00	$93 < \overline{x} \le 100$	С	2.00	$73 < \overline{x} \leq 77$
A-	3.67	$90 < \overline{x} \le 93$	C-	1.67	$70 < \overline{x} \le 73$
B+	3.33	$_{87} < \overline{x} \le _{90}$	D+	1.33	$67 < \overline{x} \le 70$
В	3.00	$_{83} < \overline{x} \le _{87}$	D	1.00	$63 < \overline{x} \le 67$
B-	2.67	$80 < \overline{x} \le 83$	D-	0.67	$60 < \overline{x} \le 63$
C+	2.33	$77 < \overline{x} \le 80$	F	0.00	$\overline{x} \le 60$

MET 540 CERTIFICATION AND NON-CERTIFICATION TRACKS

MET 540 students may choose either a "Six Sigma Green Belt" certification track or a non-certification track. Those students choosing a "Six Sigma Green Belt" certification track must: (1) satisfactorily identify, scope, and complete an *individual* project; (2) prepare and submit a 7k- to 10k-word manuscript describing their individual project (3) earn greater than a 75% on the 4-hour Final Exam; (4) be present for at least 35 contact hours (*i.e.*, students may miss up to four 1.5-hour lectures); (5) conduct themselves in a professional manner; and (6) lead an MET 440 group project. Although not required, MET 540 students are encouraged to submit their manuscript for publication as a conference proceeding or journal article. Projects are expected to expose students to the five DMAIC stages or a Lean Manufacturing process improvement.

Students choosing a non-certification track will take a 2-hour Final Exam instead of the 4-hour Final Exam. All students must declare their intention to pursue a certification track or a non-certification track via a to-be posted Brightspace survey.

Because of the 6 certification requirements given above, students choosing the certification track are not guaranteed to be certified at the end of the course. Choice of the certification or non-certification track will not influence the grade earned within the course. In other words, a student choosing the non-certification track may or may not earn a higher grade than a student choosing the certification track.

MET 540 GRADING

Your course numeric grade will be the sum of four components with the percentage weighting shown in Table 3.

Component	Quantity	Percentage
Preliminary Exams (1 hour each)	2	30%
Comprehensive Final Exam (4 hours for certification, 2 hours otherwise)	1	30%
Homework, in-class quizzes, in-class exercises	TBD	10%
Individual Project (sponsored project required for certification)	1	20%
Mentoring of group project	1	10%

Table 3. MET 540 grading rubric.

Preliminary Exams and Final: There will be two preliminary exams, and one comprehensive final exam. Neither exam grades nor the final grade will be dropped. The preliminary exams and final will not be available on a "make-up" basis except under the most extenuating of circumstances, e.g., unexpected hospitalization.

Homework: Homework will typically be assigned on a weekly basis. In addition to assigned homework, you are expected to keep up with the reading assignments given within the tentative course schedule. I suggest that you allocate at least one hour per day to read the texts.

Quizzes: Announced and unannounced quizzes will be included.

Late Work: I do not accept late homework. Quizzes cannot be made up. Exams will only be made up in the case of a verifiable emergency, *e.g.*, unexpected hospitalization.

Based upon your course numeric grade, I will assign a course letter grade per the numeric to letter grade conversion shown in Table 2.

POLICIES

Cancellations of class or office hours: If I need to cancel class or office hours the cancellation will be emailed to you via the email address in MaineStreet.

Attendance policy: For each absence in excess of 2 absences, I reserve the right to deduct up to 2 points from your final grade. For example, 5 absences may result in up to 6 points (*i.e.*, $(5-2) \times 2$ points) deducted from your final grade. Regardless if you are present or absent, you are responsible for the material covered in each class.

Further, in order to earn a "Six Sigma Green Belt" Certificate, students must be present for at least 35 contact hours. In other words, students may miss up to 4 lectures during the course of the semester. <u>If a "Six Sigma Green Belt"</u> <u>Certificate-seeking student misses more than 4 lectures, the student is ineligible to receive the "Six Sigma Green</u> <u>Belt" Certificate.</u>

Academic honesty: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University. Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314: https://www.maine.edu/board-of-trustees/policy-manual/section-314/

In this course, working together during the *process* of completing an assignment is acceptable and encouraged; *however*, each team or individual must submit *unique work product*.

Students Accessibility Services Statement: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me, Brett Ellis, privately as soon as possible.

Course schedule (Disruption Clause): In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Observance of Religious Holidays/Events: The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Sexual discrimination Reporting: The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

• For *confidential resources on campus*: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

- For *confidential resources off campus*: **Rape Response Services:** 1-800-871-7741 or **Partners for Peace**: 1-800-863-9909.
- **Other resources:** The resources listed below can offer support but may have to report the incident to others who can help:
 - For support services on campus: Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services.

Classroom Approaches: Teaching and learning methods will include lecture, discussion, guided exercises, computer exercises, cooperative learning exercises, demonstrations, and other methods. This is to provide a wide range of activities supportive of different learning styles. Guest speakers will be invited. You should expect to participate actively in classes and to be flexible. You will be expected to display behavior consistent with the Student Handbook. Additional classroom rules could be agreed upon for unusual activities. Please ask questions in class!

I 8 6 5 THE UNIVERSITY OF MAINE	5775 Stodder Hall Orono, Maine 04469-5775 umaine.edu/graduate			
Graduate School	graduate@maine.edu 207.581.3291			
Graduate Cours	se Modification			
Academic Unit: Computing & Informat	ion Science			
Course Designator & Number: SIE 505	Effective Semester: Fall 2022			
Course Title: Formal Foundations for	Information Science			
Course Modification Type:	-Site Course to Online Course, Prerequisite Change			
Other Modification:				
Current Catalog Description: SIE 505 - Formal Foundations for Information Science				
Increases student's understanding of the approach to information systems and with formal syntax and language, develops understanding and technical ability in Includes a review of fundamental material on set theory, functions and relations discusses formal languages and the bases of computation.	science by formalisms. Draws on mathematics to increase familiarity n handling structures relevant to information systems and science. s, graph theory, and logic; examines a variety of algebraic structures;			
Prerequisites & Notes Graduate standing or instructor permission. 3 credits				
New Course Designator & Number:	Credit Hours:			
New Course Title:				
New Course Prerequisites: Graduate Standing or Instructor Permission				
Courses for which this course is a prerequisite:	SIE 550 or instructor permission			
Cross-Listed Course:				
Course Instructor:				
New Catalog Description:				

Reason for course modification:

SIE 550 has long been "strongly recommended" in the student handbook for SIE, MSI and MSIS students, who are the majority for this course. Listing it officially (while still allowing for instructor permission) avoids unnecessary confusion. Many students who have not taken SIE 550 previosuly (or have a strong math background) have struggled to succeed in the course.

Because the majority of students (in the online programs MSIS and Master of Spatial Informatics) taking it asynchronously and the infeasiblity of offering it in a hybrid format, the modality is changed to an online course.

Does this course addition require additional department or institutional facilities, support and/or resources, or library subscriptions and resources?

No. The academic unit will not request additional resources for this course

Additional Resources:							
Course Frequency: Offered every Spring No overload required							
Can this course be repeated for credit?							
Total number of credits allowed:							
Total number of completions allowed:							
Can students enroll multiple times in a term?							
Mode of Instruction: Online (Asynchronous)							
Endorsoments							
Leader:penny.rheingans@maine.edu ApprovedDate:04/12/22							
College CC Chair: Date:							
College Dean: tmcole@maine.edu Approved Date: 04/14/22							
Leader: Date:							
College CC Chair: Date:							
College Dean: Date:							
DLL: mlarocque@maine.edu Approved Date: 04/19/22							

School of Economics www.umaine.edu/soe Phone: 207-581-3154



5782 Winslow Hall Orono, Maine 04469-5782 Fax: 207-581-4278

May 2, 2022

To: Scott Delcourt, UMaine Graduate School

RE: Changes to pre-requisites for multiple Economics graduate courses

Dear Scott,

The School of Economics would like to simplify and streamline our graduate course prerequisites. Per an email from you on October 26, 2021, you said this could be accomplished by sending you a memo.

Here is a list of the requested changes and affected courses below each pre-requisite:

B or better in ECO 514 or permission

ECO 515 Advance Microeconomics ECO 571 Advanced Env and Resource Economics I ECO 572 Advanced Env and Resource Economics II

B or better in ECO 530 or permission

ECO 531 Advanced Econometrics and Applications ECO 532 Applied Time Series Econometrics

Graduate or 4+1 standing in the School of Economics or permission

ECO 511 Macroeconomic Theory ECO 514 Microeconomic Theory ECO 530 Econometrics

Graduate standing in the School of Economics or permission

ECO 502 Contemporary Issues in World Economy ECO 503 Experimental Economics ECO 504 Behavioral Economics ECO 505 Sustainable Energy Economics and Policy ECO 527 Regional Economic Methods ECO 550 International Env Econ and Policy ECO 553 Financial Economics ECO 565 Graduate Economics Practicum ECO 590 Advanced Topics in Economics ECO 593 Graduate Seminar

Graduate standing or permission

ECO 516 Evolutionary Economics ECO 581 Agent-Based Modeling

Permission ECO 597 Independent Studies

San 4May 2022

15:16

Students who have not yet completed a "Responsible Conduct of Research" course approved by the Office of Research and Sponsored Programs and the Graduate School (https://umaine.edu/graduate/students/rcr/) must receive permission to enroll in thesis/ research credits. Students must enroll in an RCR course before or concurrent with their third credit of thesis/research. ECO 699 Graduate Thesis Research

-2-

Aharon Klein

Sincerely, Dr. Sharon Klein Associate Professor Graduate Program Coordinator School of Economics

Jusan Sultivan NSFA Woriculum Committee 5/2/22

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555 4 May 2022