Math 471: Optimization Techniques

Spring 2016
MWF 11:00 – 11:50 am EGRA 422

Instructor:
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Office Hours:
MWF 8:00 – 10:00 am

Text:

Course Description:
Introduction to algorithms for finding extreme values of nonlinear multivariable functions with or without constraints. Topics include: convex sets and functions; the arithmetic-geometric mean inequality; Taylor’s theorem for multivariable functions; positive definite, negative definite, and indefinite matrices; iterative methods for unconstrained optimization.

Prerequisites:
Math 221 and Math 250 with C or better

Tentative Schedule:
Chapter 1: 1.1 – 1.3 and 1.5
Chapter 2: 2.1 – 2.5
Chapter 3: 3.1 – 3.3
Chapter 4: 4.1 – 4.3
Chapter 5: 5.1 – 5.3
Chapter 7: 7.1 – 7.2

Coursework and Grading:
There will be bi-weekly homework assignments and/or projects, two hour-exams, and one comprehensive final exam. The breakdown for the course grade is as follows:

- Homework and projects: 30%
- Hour-exams: 40%
- Final exam: 30%

Numerical course grades in the 90s, 80s, 70s, and 60s translate to letter grades A, B, C, and D, respectively.

Exam Dates:
First exam: Friday, 02/19
Second exam: Friday, 04/01
Final exam: 10:15 am – 12:15 pm on Friday, 05/13, at EGRA 422
IMPORTANT DATES *

Semester class begins: ................................................................. 01/19/2016

Last day to add a class (without instructor permission): ............. 01/24/2016

Last day to withdraw completely and receive a 100% refund: ...... 01/31/2016

Last day to drop a course using SalukiNet: .............................. 04/03/2016

Last day to file diploma application (for name to appear in Commencement program): ........................................................... 02/12/2016

Final examinations: ........................................................................ 05/09-05/13/2016

Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic webpage http://registrar.siu.edu/

SPRING SEMESTER HOLIDAYS

Martin Luther King, Jr.'s Birthday Holiday 01/18/2016

Spring break 03/12—03/20/2016

WITHDRAWAL POLICY ~ Undergraduate only

Students who officially register for a session may not withdraw merely by stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/catalog/undergraduatecatalog.html

INCOMPLETE POLICY ~ Undergraduate only

An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student's grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY

An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/catalog/undergraduatecatalog.html

GRADUATE POLICIES

Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY

Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM

Student Conduct Code http://srr.siu.edu/student_conduct_code/


MORRIS LIBRARY HOURS

http://www.lib.siu.edu/about

SAFETY AWARENESS FACTS AND EDUCATION

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES

The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Emergency response information is available on posters in buildings on campus, available on BERT’s website at www.bert.siu.edu. Department of Safety’s website at www.dps.siu.edu (disaster drop down) and the Emergency Response Guideline pamphlet. Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE

SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES

Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website: Tutoring: http://tutoring.siu.edu/, Math Labs http://math.siu.edu/courses/course-help.php

WRITING CENTER

The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY

Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:

SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin

ADVICEMENT: http://advisement.siu.edu/

PROVOST & VICE CHANCELLOR: http://pvcaa.siu.edu/

SIU ONLINE: http://online.siu.edu/

Spring 2016 R.O'Rourke