IOWA STATE UNIVERSITY
DEPARTMENT OF MATHEMATICS

COURSE SYLLABUS - SPRING 2016

MATH 314
GRAPH THEORY
(3 credits)

Section A: 11:00am-12:20pm TR, 0174 Carver Hall
Final Exam: 9:45am-11:45am, Mon, May 2 2016

Instructor: Bernard Lidický, 422 Carver Hall, lidicky@iastate.edu
Web page: `http://orion.math.iastate.edu/lidicky/201/`
Office hours: 1-2pm T and 1:30pm-2:30pm W
Grader: Kirsten Hogenson, 402 Carver Hall, kahogens@iastate.edu

Brief description of goals and objectives: The aim of this course is to give an introduction to graph theory. We will study structural and extremal properties of graphs. Topics are selected from: trees, networks, colorings, paths and cycles, connectivity, planarity, directed graphs, matchings, Ramsey theory, forbidden structures, enumeration, applications. The course is heavily proof oriented, being familiar with proof techniques is an essential prerequisite.

We will follow the textbook loosely.

Prerequisites: MATH 166 or MATH 166H; MATH 201
Ability to write proofs is absolutely necessary.

Textbooks:
G. Chartrand and P. Zhang: A First Course in Graph Theory
D. B. West: Introduction to Graph Theory (supplementary)

The first textbook serves as the main textbook. The second book serves as a book that provides more depth for topics from the first book. Curious students may explore R. Diestel: Graph Theory (`http://diestel-graph-theory.com`).

Topics to be covered: Math 314 will cover chapters a mix of Chapters 1–12.

Dead week: There will be a homework assignment due Thursday of the dead week.

Study habits: This course does require considerable work. You should be devoting time to reading the book, thinking about the ideas, concepts, and techniques, talking with some of your classmates about them, doing all the assigned homework problems. It is expected that you will read the book - not everything you should learn and know will be discussed in class. Regular attendance and participation in class activities are the prerequisites for success. Class attendance is required.

Mathematics, as many other disciplines, is better learned by doing then by listening. There will be a considerable amount of time devoted to problem solving in class in groups.

Online resources: The class has a webpage `http://orion.math.iastate.edu/lidicky/314/` and a page in Blackboard. The webpage contains basic information about the class and class log, which serves as a tentative schedule of the course as well as list of what was done in class. The Blackboard contains grades as well as a forum where you can seek help.

Homework assignments: The assignments will be given weekly. They will be always due Thursday BEFORE the class begins, including the Thursday of the dead week. The homework assignment does not cover all exercises in the chapters in the book. You are strongly encouraged to read all the exercises in the book and try to solve them. You will get the most knowledge if you try to solve as many exercises as possible. No late assignments will be accepted. If you cannot make it to class on some Thursday, you can scan your work and email it to the instructor. The email must ARRIVE to the instructor before the class begins. Your work on any assignments should be well-presented in good English, and not written carelessly. While you can discuss the assignments with classmates, the work you hand in should be your own write-up and not copied from someone else. The homework assignments will be 25% of your final grade.

Exams: There will be three in-class exams during the semester, each worth 15% of the final grade, and a final exam, worth 30% of the final grade. The exams will occur during regular class meeting times and are scheduled for February 11, March 10 and April 21. These dates are unlikely to change but any such change will be announced both in class and on Blackboard.

There will be no make-up exam unless you have "excusable absence". Please check `http://www.math.iastate.edu/Faculty/ClassPolicies.html` for the university policy on "excusable absences". The only possible excuses are medical excuse, extra curricular activities as a representative of Iowa State University, armed forces deployment, or officially mandated court appearances, including jury duty. Official documentation is required in all cases (if you feel sick, go to a doctor).

Reading assignments: There will be reading assignments. You will be expected to read the book.

Quizes: There will be quizzes. The quizzes will not negatively affect your grade.

Grading policy: Your final grade will be 25% for homework, 15% for each of the three midterms and 30% for the final exam. Grades thresholds are 90% for A, 80% for B, 70% for C and 60% for D. Below 60% is F.

Because of this absolute standard, you are not in competition with your classmates nor does their performance influence positively or negatively your performance. You are encouraged to form study/problem groups with your classmates; things not clear to you may become obvious when you try to explain them to others or when you hear other points of view. Sometimes just verbalizing your mathematical thoughts can deepen your understanding.

As already mentioned, if you discuss with others the exercises, each person should write up her/his own version of the solution.

If you do not have anybody in class to talk to, you are welcome to use the forum on Blackboard to ask questions. Anybody from the course can answer. Please, never post a complete solution of any homework assignment to the Blackboard.

Classroom etiquette: Communication devices (phones, tables, laptops,...) must remain switched off and stored away during the class periods and exams. Laptops or iPads are allowed only for textbook reading or taking notes.

Attendance: Although attendance will not be taken, it is required. Office hours are for those of you who need additional help beyond that given in the class; they are not substitutes for class.

Academic dishonesty: The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office. `http://www.dso.iastate.edu/ja/academic/misconduct.html` The cheating policy is very strict. Things considered cheating are copying your work from the Internet or your peers, having unapproved items on the desk during exams (even when not using them, already having them is considered a violation). Committing academic dishonesty may result in grade F from the whole course without regard to any other credits earned before or after the occurrence of the academic dishonesty.

Disability accommodation: Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact instructor to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Before meeting with the instructor, you will need to obtain a SAAR form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email disabilityresources@iastate.edu. Retroactive requests for accommodations will not be honored.