California State University Long Beach
Math 233: Fundamental Concepts for Advanced Mathematics, Spring 2019

Professor : Ryan Blair
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Office : FO3-213
Office Hours: TuTh 10:45-11:45 am

Class Meetings: TuTh 9:30-10:45 am in LA5-245

Text: *Number, Space, and the Structures of Mathematics* by Scott Taylor. A review copy of the text is available for free at this site: http://web.colby.edu/sataylor/numberspacestructure/

Course web page: http://www.csulb.edu/~rblair/Math233S19/index.html

Prerequisites: MATH 123 with a grade of "C" or better.

Course description: This course is an introduction to mathematical proof and key concepts in advanced mathematics. We will cover the fundamentals of logic, set theory, counting principles, functions and relations, an induction to elementary number theory, an introduction to elementary combinatorics, and an introduction to elementary group theory.

Learning Outcomes: After finishing this course, students will be able to write formal mathematical proofs using a range of fundamental techniques such as direct proof, induction and proof by contradiction. Students will be able to apply their proof writing skills to various basic concepts in number theory, combinatorics and abstract algebra.

Attendance: To be successful in this course, you should be present for all class meetings. If you must miss class, please notify me as soon as possible. For more information, see http://www.csulb.edu/divisions/aa/catalog/current/academic_information/class_attendance.html

Homework: Homework assignments will be distributed in class and/or on the course web page, typically once a week. They will be due as noted. You are responsible for being aware of the assignments and due dates. Homework assignments will incorporate exercises from our course texts and exercises from outside sources. Homework will be graded based on correctness and completeness. Late homework will be accepted up to one week after the due date, but will be penalized with a 25% deduction from the final score.

You are strongly encouraged to work in groups to exchange ideas and help each other understand how to approach problems, but the work you turn in must be your own! If you work with others on an assignment, be sure to indicate the names of the other students on your homework. Additionally, if you use any outside resources (i.e. internet sources, other mathematicians, other books) to help you solve homework problems, you must cite your sources. **Failure to follow these rules will result in a score of zero on an assignment and may constitute a violation of academic integrity.**

Homework must be legible, well-organized, and written in complete sentences. Handwritten work is fine, but you are encouraged to type up the problems in LaTeX.

Exams: There will be two midterm exams, according to the following tentative schedule:

1) Midterm 1: in class, February 28th
2) Midterm 2: in class, April 18th

Final Exam: The final exam is accumulative and will be given on **Tuesday, May 14th from 10:15am to 12:15pm.**

Grades: Your grade for the course will be determined based on the following factors:
Homework 40 %
Midterm 1 12 %
Midterm 2 18 %
Final Exam 30 %

Office hours: I will hold regular office hours at the times noted above, unless I email or tell you otherwise in class. Alternatively, you may set up an appointment to meet with me.

Accommodations: Students with disabilities should immediately contact the Bob Murphy ACCESS Center (BMAC) (Student Success Center-110) or call (562) 985-5401 to review and address their academic accommodation requests. Students will need to present the appropriate forms issued by DSS to the instructor. Information regarding BMAC can be found at http://www.csulb.edu/divisions/students2/dss/.

Withdraw: The last day to withdraw without receiving a W is **February 4th**. The last day to withdraw with a W is **April 19th.** Plan early since it's sometimes hard to track people down for signatures. Any office hour may be cancelled due to illness or necessary appointments, and the students should not therefore depend on a faculty member being in his/her office for a particular office hour. Students should secure any necessary signatures well in advance of any deadlines.

Academic Integrity: Academic integrity is expected for assignments and exams. The usual penalty for a student caught cheating or plagiarizing includes an F in the course. Further penalties may include probation, suspension, or expulsion from the university. More information can be found on http://www.csulb.edu/divisions/aa/catalog/current/academic_information/cheating_plagiarism.html

Zero-Tolerance Policy: CNSM is committed to providing a safe and positive learning environment and has established a zero-tolerance policy for any sexual/gender-based misconduct, including, but not limited to sexual harassment, assault, relationship violence or stalking for all faculty, staff, and students.

The following entities at CSULB have been established to provide support and assistance for victims of sexual harassment and assault: Title IX Office http://web.csulb.edu/divisions/students/titleix/titleix_reporting.html, CSULB University Police Department https://www.csulb.edu/university-police/title-ix, The Women's & Gender Equity Center, http://web.csulb.edu/divisions/students/wrc/sexual_assault/, and the Counseling & Psychological Services (CAPS) Office http://web.csulb.edu/divisions/students/caps/, and Student Health Services: http://web.csulb.edu/divisions/students/shs/sexual_assault.htm. For more information regarding CSULB's policies on sexual misconduct and discrimination: http://www.csulb.edu/titleix.

As members of The Beach community, we practice tolerance and denounce hate and prejudice. Our classroom will strive to be a place of mutual respect where the focus is on learning and student success.

Note: The instructor reserves the right to alter anything on this syllabus at any time during the semester. Any alterations will be announced in class.