
INTRODUCTION TO MATHEMATICAL ANALYSIS

MATH 225 SECTION 11

INSTRUCTOR: *Dr. Sambandam Ekambaram* EMAIL: sekambaram@columbiacollege.ca

TIME: T & R: 10:00 TO 11:55 AM

ROOM #: 344

Education is the manifestation of perfection already in man
-Swami Vivekananda

INSTRUCTOR: Dr. Sambandam Ekambaram (Dr. Sam Ekambaram)

LENGTH OF COURSE: One semester (14 weeks)

CONTACT INFORMATION:

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CLASSROOM HOURS/WEEK: Tuesdays and Fridays from 10:00 AM to 11:55 AM in Room # 344

OFFICE HOURS: Monday, Tuesday and Thursday: 12: 15 to 2:00 PM in Room #546

IMPORTANT DATES:

September 12, 2016: Last Day to change/add/drop courses

October 10, 2016: Thanksgiving Day

October 25, 2016: Midterm test

November 11, 2016: Remembrance Day

December 5 to 9: Final Examinations

Who should take this course? Students who wish to major in sciences must take this course.

About Math 225: This course is about ideas which form the foundation of advanced calculus. Mathematics is itself a language of precision. The language of writing clear statements using well-defined symbols and notations is of prime importance in this course.

Another aspect of this course is that we are not given a method or a formula. The problem is given. We have to find a method or formula to solve the problem. It is not solving a problem by a prescribed formula. The problem will be given. You seek, explore and find the Mathematics to solve the problem.

Transferability: Accepted for transfer by SFU, UBC, UNBC, Kwantlen Polytechnic University, and University of the Fraser Valley and Thomson River University. For more information please see www.bctransferguide.ca

Website: <http://staff.columbiacollege.bc.ca/sekambaram/>

Textbook: Mathematical Proofs: A Transition to Advanced Mathematics, Third Edition

Gary Chartrand; Albert D. Polimeni; Ping Zhang

You should buy the text book. Students will be given reading assignment. Each student will be required to do a teaching presentation with clear written and verbal communication.

ATTENDANCE: Students must discuss/communicate all late arrivals, early departures and absences with the instructor. Arriving late by more than 5 minutes is defined as Late Attendance. The penalty is described below:

Late attendance for more than three days: 0.20 percent for every class from the fourth day.

Absence for more than three days: 0.25 for being absent for every class from the fourth day.

BONUS MARKS: For punctuality, having the print copy of the text book in class, attendance, asking questions, answering questions, attending office hours for guidance in studying, learning to use calculator only when it is necessary, learning when not to use calculator, observing good code of ethics as a student and keeping up the deadlines for assignments, all these will be given bonus marks of up to 10% at the discretion of the instructor.

Syllabus:

- Sets, Algebra of sets, Propositions
- Methods of Proof
- Mathematical Induction
- Functions, Relations, Equivalence Relations
- Cardinality of Sets
- Proofs in Calculus
- Proofs in Number Theory
- Selected Topics

Evaluation Scheme: (subject to changes)

	<i>DATES</i>	<i>%</i>
Quizzes	Every lecture	25
Midterm test	At the end of 7th week	30
FINAL EXAMINATION	In the week of Dec. 5th, 2016	45

How to study:

1. Read the notes before coming to every class.
2. Read the book and redo the examples done in the class first. Then try more examples from the book.
3. Write down the notes exactly the same way that I write on the white board.
4. Every class begins with questions and answers followed by a quiz.
5. If you come to the class, you would understand better
6. If you understand then you would do better in the daily quiz.
7. If you do better in the daily quiz you would do better in the midterm test.
8. If you do better in the midterm test you would do very well in the final examination.
Math 225 Done with A plus.
9. Prepare index cards for definitions and techniques. Bring them to me for editing.
10. We express ideas in the language of Mathematics. If you read and follow the style in class or in the text book, you'll be able to understand the language of Mathematics. In a few days you'll learn to express ideas precisely. You'll learn also not to misuse the symbols and notations.
11. A definition is an authority. It is the high command. Follow faithfully the words and the meaning to understand completely each definition.
12. If you do not understand you must know that you do not understand. Then a possibility is there to understand.
13. If you realize that you are confused, then there is a desire to understand. You are on your way to understand. Take one more step.

14. Misunderstanding is often the reason for failure.
15. When I ask you questions in class, you should sincerely try to answer. I'll ask only questions for which you could answer easily. If it is hard question, I would give hint in advance. You may not even realize it was a hard question. Answering questions wrong is allowed. Not answering a question is disrespect to learning.
16. You are encouraged to ask questions. Any question related to what is being taught is welcome. No sincere question is a bad question.
17. If you miss a test or quiz, a second chance may not be given. Doctor's note may not be always acceptable. Your grade is continuous which means you have to study regularly and continually.
18. Make appointments to see me during office hours. If you have classes during my office hours let me know.
19. Office hours is not optional for you. It is essential. Do not plan to go to work during office hours. You are actually paying for office hours also. Consider office hours as tutorials.
20. Each exercise in the homework is meant to teach you an idea or a deeper level of an idea. So, you must do each exercise before going to the next section.
21. The method is more important than the answer to the question. Show your understanding.
22. Eat good food only when you are hungry. Eating on time is not really healthy!
23. Do physical exercises or Yoga every day. A finer form of body is mind.
24. There is no substitute for hard work.
25. Do not expect the instructor to let you in when you come late.
26. Do not expect the instructor to solve an exercise and do customer service for you.
27. Do not just say I don't know. You must know what you don't know. If you are able to understand what you don't know, you are closer to the answer.
28. Read this outline again
29. *Awake! Arise!! Stop not till the goal is reached!!!*

30. *The purpose of education is to shape you “being human”. By default every one is a human being.*

CHEATING AND PLAGIARISM:

Columbia College expects all students to uphold the principle of academic honesty. Cheating and plagiarism (presenting another person’s words or ideas as one’s own) are not acceptable behaviour at any educational institution. Depending on the severity of the offense such acts can result in a grade of zero on the test or assignment, a failing grade (F) in the course or expulsion from the college. In all cases, the circumstances and the penalty are recorded in the student’s file.

CLASSROOM CODE OF CONDUCT

Students at Columbia College are expected to show respect for the rights of other students, in particular the right to study and learn. Any behaviour in a classroom that interferes with the instructor’s ability to conduct the class will be treated as disruptive; the penalties for disruptive behaviour are set out in the College Calendar, and include suspension and even expulsion from the College. In general students are expected to be attentive and courteous during class and lab time, to complete assigned work and to accept responsibility for their own achievement. In particular:

students will aim to arrive at all classes early so as to be ready when the class begins – this means taking a seat and getting out paper, pens, necessary texts and so on before the class starts.

students will not expect to leave the class before the instructor has finished. On those rare occasions when a student must leave a class early he/she should seek the permission of the instructor before the class starts. If a student must excuse himself/herself during a class the student should request permission and leave as quietly as possible.

Cell phones, pagers and beepers will be turned off during classes, not simply switched to “vibrate” mode. Students should never consult their phones, etc, during a class.

students will not talk while the instructor is talking.

students will speak respectfully when asking a question or answering a question posed by the instructor.

students may not eat or drink during classes unless the instructor indicates that this is acceptable in his/her class