<u>Math 329 – Complex Analysis</u>
Spring 2006

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<u>Course Materials</u> – The text is <u>Complex Analysis for Mathematics and Engineering</u> 4th edition.

<u>Course Goals</u> – In this course you will gain an understanding of the basic techniques of Complex Analysis. In particular we will explore complex arithmetic, analytic and harmonic functions, and the structure of complex space. This course will also help to build your proof writing skills.

<u>Evaluation and Grading</u> – Grades will be the result of quizzes, homework, two tests, and a final exam. The breakdown is as follows:
        Quizzes/Homework – 30%
        Culture Points – 5%
        Two Exams – 20% each
        Final Exam – 25%
Each day there will be homework assigned. Some problems will be turned in, some are just for practice. It is vital that you do all the homework problems assigned. You cannot learn math without lots of practice!

<u>Attendance</u> – Regular attendance is vital. A late assignment will be graded with a reduction of 10% for each day it is late. There will be no make-up quizzes given, and make-up exams are given only in extreme, pre-approved cases. If you have to miss an exam it is your responsibility to contact me **in advance**.

<u>Disclaimers</u>
- This syllabus is subject to change through the semester. Any updates to the syllabus will be posted on the class web-page.
- If you are in need of special accommodations due to a disability, please contact the Learning Services Office as soon as possible. We can only accommodate your special needs if we are made aware of them.
- All grades given in this class are subject to my qualitative judgment as professor of the course.

<u>Mathematics Department Academic Honesty Policy</u> – The Mathematics Department supports and is governed by the **Academic Honesty Policy of Moravian College** as stated in the Moravian College Student Handbook. The following statements will help clarify the policies of members of the Mathematics Department faculty.

In all at-home assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thoughts of others, however, you must acknowledge the source. You also may not use a solution manual or the help (orally or in written form) of any individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources, you will be violating the **Academic Honesty Policy of Moravian College**. You may work with your fellow students on homework which is not to be graded. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and un-graded.

The purpose of Culture Points

Mathematics is a broad subject – it has grown out of very concrete needs to measure, assess, compute. Over the millennia it has grown both in practical applications and in aesthetic beauty. A mathematician seeks ideas that are both intellectually rigorous and intrinsically elegant.

One of my central goals for this class is to give you some perspective into the nature of mathematics and why it should matter to everyone. To help you get a better sense of what mathematics is, I am asking you to participate in "mathematical cultural awareness." There are no specific assignments for this portion of the course. Rather, there are many opportunities for you to explore mathematics in our culture. Activities that foster cultural awareness include (but are not limited to): attending talks, discussing a mathematical topic with a fellow student or professor, giving a talk, reading a paper, or solving a problem.

How to get credit

After participating in an event relevant to your mathematical growth, you need to submit a short paper. It should be typed (1.5 line spacing, 12 point font, standard margins), and consist of two parts:

- **Part I** (no more than 150)
- Provide a description of the event or activity. For a math talk, article, or conversation, this would mean providing a summary of the material covered. For a solved problem, this would mean a complete solution to the problem.
- **Part II** (no fewer than 75 words)
- Explain how the event deepened your understanding or appreciation of mathematics. Some questions to consider here are: Did the activity change the way you think about mathematics? Did the mathematical perspective change the way you think about the topic? Did it confirm any perceptions you might have had of mathematics? What sorts of connections did the mathematics of this event have with your own life or to the current course?

Each event is typically awarded a fixed number of points (see the examples at the right). Depending on the quality of your response (above) you may be awarded more or fewer points for the event.

Rules for submission

- No more than one culture point submission may be made in a 48 hour period. Otherwise you are free to make as many culture point submissions as you wish.
- If your submission is about an event (a TV show, math colloquium, etc.), then I must receive the submission within 10 days of the event in order to give credit.
- If you are submitting a reflection on an article or other reading, then you must provide the complete bibliographic entry for the source. DO NOT give me a copy of the source itself.

How to assess a grade

By the end of the semester, you need to have accrued **15 points** to get full credit for this portion of your course grade. Your credit for this portion of the course grade will be based on what percentage of those 15 points you managed to accrue.

Some typical cultural events

The following events provide guide of what sorts of activities might get you credit. If you participate in an activity not listed here that you believe contributed to your understanding/appreciation of geometry, please don't hesitate you write up your summary and hand it in to me.

1. Attend an epsilon-talk (2 points)

    While I hope you attend all epsilon-talks, I can give credit for at most 3 of these.

2. Attend a Math/CS colloquium (3 points)

3. Attend the Moravian Student Conference in February (7 points)

4. Review an article on mathematics (2 to 4 points)

    Some nice journals to look through are *Scientific American*, the *MAA Monthly*, and the *Mathematical Intelligencer*.

5. Discuss a mathematical topic with someone not in our class (2 points)

    This is assuming a single serious mathematical conversation, as opposed to a quick single question and single answer situation.

6. Solve a problem outside the normal scope of the class (2 to 4 points)

    Throughout the semester, I will indicate some potential problems for you to work on.

7. Watch and review a movie (e.g.: *A Beautiful Mind*) or television show (e.g.: *Numb3rs*) that tries to present an honest portrayal of mathematics or mathematicians.

As the semester progresses, I will offer some specific opportunities to gain culture points.

Section	Problems
0.4	2a-e, 16a-c, 18, 37, 41, 42
1.1	4a-f, 7, 11, 12, 15
1.2	1, 3abd, 14