MATH 499 - INDEPENDENT STUDY IN p-ADIC ANALYSIS

CHRISTOPHER NEWPORT UNIVERSITY

(1) **Instructor Information**
- Name: Dr. Charles L. Samuels
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(2) **Course Information**
- Title: Math 499 - Independent Study in p-adic Analysis
- Credit Hours: 1
- Semester: Fall 2016
- Time: Thursday 1:30-2:20pm
- Location: LUTR 358
- Textbook: *p-adic Numbers* (2nd Edition) by Fernando Q. Gouvea; ISBN-13: 978-3540629115
- Prerequisite: MATH 345
- Corequisites: MATH 360 and MATH 370

(3) **Grading**
- Your final grade for the course will be based on homework (25%), presentations (25%), one midterm exam (25%), and a cumulative final exam (25%). These individual components are discussed below.
- Your final course grade will be assigned based on the following scale:
  - 93-100: A
  - 90-92: A-
  - 87-89: B+
  - 83-86: B
  - 80-82: B-
  - 76-79: C+
  - 70-75: C
  - 65-69: C-
  - 60-64: D+
  - 55-59: D
  - 50-54: D-
  - 0-49: F

(4) **Homework**
- Homework is due every other Thursday at the beginning of our scheduled meeting time starting on September 8. Late homework will not be accepted.
- Homework will cover the material discussed during our meetings in the two weeks prior to its due date.
- Homework will emphasize proofs of theorems from p-adic analysis but may include occasional computational problems.
- Homework will be graded based on the following criteria:
  - Correctness of notation
  - Correctness of logic
  - Correct citation of known results
  - Completeness of proofs

(5) **Presentations**

- Our Thursday meetings will consist of alternating presentations by the student and instructor. The presentation schedule is as follows:

Date	Presenter
August 26	Dr. Samuels
September 1	Steven
September 8	Dr. Samuels
September 15	Steven
September 22	Dr. Samuels
September 29	Steven
October 6	Dr. Samuels
October 13	Steven
October 20	Dr. Samuels
October 27	Steven
November 3	Dr. Samuels
November 10	Steven
November 17	Dr. Samuels
December 1	Steven

- The topic for each meeting will be determined at the end of the prior meeting and will be based on a section of the course textbook. The presentation topics will follow the order of course topics outlined below.
- Each presentation should state and prove the major theorem(s) of that section as well as provide examples of the use of those theorems.
- The students' presentations will be graded based on completeness and clarity.

(6) **Midterm Exam**

- There will be a one week take-home midterm exam.
- You will receive the exam on Thursday, September 29 at the end of our meeting and the exam will be due on Thursday, October 6 at the beginning of our meeting.
- During the midterm exam, you may use your returned homework assignments, course textbook, and any additional notes you have generated during the semester for this course. Additionally, you may speak to the instructor about the exam at any time. You may not consult any other materials or any other person regarding the exam during the testing period from 9/29 to 10/6.
- The midterm exam will be graded based on the same criteria as homework assignments.

(7) **Final Exam**

- There will be a one week take-home final exam.
- You will receive the exam on Thursday, December 1 at the end of our meeting and the exam will be due on Thursday, December 8 at 1:30pm.
- During the midterm exam, you may use your returned homework assignments, returned midterm exam, course textbook, and any additional notes you have generated during the semester for this course. Additionally, you may speak to the instructor about the exam at any time. You may not consult any other materials or any other person regarding the exam during the testing period from 12/1 to 12/8.
- The final exam is cumulative and will be graded based on the same criteria as homework assignments.

(8) **Calculators**

Calculators are not allowed on either of the exams.

(9) **Course Topics**

- Section 3.1 – Absolute Values on $\mathbb{Q}$
- Section 3.2 – Completions
- Section 3.3 – Exploring $\mathbb{Q}_p$
- Section 3.4 – Hensel's Lemma
- Section 3.5 – Local and Global

- Section 4.1 – Sequences and Series
- Section 4.2 – Functions, Continuity and Derivatives
- Section 4.3 – Power Series
- Section 4.4 – Functions Defined by Power Series
- Section 4.5 – Some Elementary Functions

(10) **Students with Disabilities**

In order for a student to receive an accommodation for a disability, that disability must be on record in the Dean of Students Office, 3rd Floor, David Student Union (DSU). If you believe that you have a disability, please contact Dr. Kevin Hughes, Dean of Students (594-7160) to discuss your needs. Dean Hughes will provide you with the necessary documentation to give to your professors.

Students with documented disabilities are required to notify the instructor no later than the first day on which they require an accommodation (the first day of class is recommended), in private, if accommodation is needed. The instructor will provide students with disabilities with all reasonable accommodations, but students are not exempted from fulfilling the normal requirements of the course. Work completed before the student notifies the instructor of his/her disability may be counted toward the final grade at the sole discretion of the instructor.

(11) **Success**

I want you to succeed in this course and at CNU. I encourage you to come see me during office hours or to schedule an appointment to discuss course content or to answer questions you have. If I become concerned about your course performance, attendance, engagement, or well-being, I will speak with you first. I also may submit a referral through our Captains Care Program. The referral will be received by the Center for Academic Success as well as other departments when appropriate (Counseling Services, Office of Student Engagement). If you are an athlete, the Athletic Academic Support Coordinator will be notified. Someone will contact you to help determine what will help you succeed. Please remember that this is a means for me to support you and help foster your success at CNU.

(12) **Academic Support**

The Center for Academic Success offers free tutoring assistance for CNU students in several academic areas. Staff in the center offer individual assistance and/or workshops on various study strategies to help you perform your best in your courses. The center also houses the Alice F. Randall Writing Center. Writing consultants can help you at any stage of the writing process, from invention, to development of ideas, to polishing a final draft. The Center is not a proofreading service, but consultants can help you to recognize and find grammar and punctuation errors in your work as well as provide assistance with global tasks. Go as early in the writing process as you can, and go often!

You may drop by the Center for Academic Success to request a tutor, meet with a writing consultant, pick up a schedule of workshops, or make an appointment to talk one-on-one with a University Fellow for Student Success. The Center is located in Newport Hall, first floor, room 123.

(13) **Academic Honesty**

- I am not much of an enforcer. I expect that honesty is as important to you as it is to me. In general, I expect that students will make no attempt to violate the policies of this course or to violate the policies of the university.
- Nevertheless, if I have evidence that a student violated any such policy, or assisted another student in doing so, I will report my findings to you and to the appropriate office for appropriate sanctions.