Math 1077 WA

Sequences and Series - Winter Term 2012

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Text: **"Essentials of Technical Mathematics with Calculus"**, Second Edition, by Richard S. Paul and M. Leonard Shaevel

Lectures: Tuesday, Thursday: 4:00 p.m. – 5:30 p.m. in RC-1001

Lab: Wednesday: 7:00 – 9:00 p.m. in RB-2024
(Please email me prior to 4:00 p.m. on Wednesday if you plan to attend the Lab.)

Course Content: Chapters 2, 15, 20, (from the course text)
Supplemental Topics (anticipated): Mathematical Induction, Monotone Sequences, Exponential Function as a Limit, Series Convergence Tests (p-series, comparison test, ratio test, root test, alternating series test)

Grading Scheme: Your final grade will be the higher of the two grading schemes below:

Scheme #1:	Assignments 10% Mid Term Test 30% Final Exam 60%	**Scheme #2:**	Assignments 10% Final Exam 90%

Homework Assignments:
Questions will be assigned as the topics are covered. There will be 5 assignments to hand in with due dates of Jan. 30, Feb. 13, Mar. 5 and Mar. 19 and Apr. 2. They are due by 4:30 p.m. and you can deposit your assignment in the box marked M-1077 WA next to RB 2023 on the second floor of the Ryan Building. No late assignments will be accepted. Assignments may be done in pen or pencil.

All attempted questions should be submitted in the order they were assigned. The first page should have Math 1077 WA and the assignment number written on it. All pages should be **stapled together** and have your name and/or student number on them. As the majority of assignment questions (for the first 3 assignments) will have answers available, they will be marked more for completion than explicit detail.

Mid Term Test:
There will be one mid-term test valued at 30%. It will be held during the week before the February study break. There will be no makeup test for a missed test. The value of the missed test will simply be added to the weight of the Final Exam. Tests (and Exams) can be written in either pen or pencil.

Re-mark of Tests:
1. Do not make any changes to your test paper.
2. Either see me during office hours, or on a separate piece of paper note what is wrong with the way your test is marked. Attach this note to your test paper and submit these papers to me, not in the assignment box.
3. No mark changes will be considered seven days from the day the test is handed back.
4. Note that in any re-evaluation of your marks, while there is a potential for your mark to increase, there is also the possibility for your mark to decrease.

Final Exam:
The final exam will cover the entire course. The date and time will be determined by the Office of the Registrar and will be posted on the web under Exam Schedule.

COURSE CONTENT

Chapter 2 (Exponents and Radicals)

2.1 – 2.3 Exponent Laws and Scientific Notation
2.4 – 2.5 Radicals and Rational Exponents

Chapter 15 (Exponential and Logarithmic Functions)

15.1 Exponential Functions
15.2 Logarithmic Functions
15.3 Properties of Logarithms
15.4 Change of Base
15.5 Exponential and Logarithmic Equations

15.6 (Renamed – Fitting Data Points to: Power Functions $(y = ax^m)$ and Exponential Functions $(y = ab^x)$)

Chapter 20 (Sequences and Series – Part 1)

20.1 Sequences and Series (Introduction)
20.2 Arithmetic Progressions
20.3 Geometric Progressions
20.4 Limits of Infinite Sequences
20.5 Infinite Geometric Series
20.6 Binomial Theorem

SUPPLEMENTAL TOPICS
Mathematical Induction

Sequences and Series – Part 2 (Infinite Series)
Monotone Sequences
Telescopic and Harmonic Series
Test for Divergence
Comparison tests (Direct, Limit)
The p-Series
Alternating Series
Absolute and Conditional Convergence
Ration and Root Tests

Continuous Compound Interest (Applying the Exponential Function as a Limit) – time permitting

External Textbook Sources

Additional textbook sources to complement the lecture notes for the Supplemental Topics can be found on the 4th floor of the Chancellor Paterson Library as follows:

(1) Mathematical Induction
- Call numbers beginning with QA 154
- Many books under the title of Algebra and Trigonometry

(2) Convergence of Infinite Series (and related topics such as the Squeeze Theorem and Monotone Sequence Theorem)
- Call numbers beginning with QA 303
- Titles including Single Variable Calculus for Engineers, Calculus and Analytic Geometry
- Authors such as Stewart, Trim, Thomas/Finney, Larson/Hostetler/Edwards, Ellis/Gulick