**MTH 253**

**Series Calculus and Linear Algebra**

CRN 31381 M-Th 10-10:50 WOH 113

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| **Instructor:** Nicole Francis  **Email:** francin@linnbenton.edu | **Office:** WOH 118  **Office Hours:**  M-TH 11-12 or by apt. |
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| **Course Materials:** | **My Math Lab Course ID: francis66073**  (Calculus: Early Transcendentals, **3rd** edition by Briggs, Cochran, and Gillett)  Matrix and Power Series Methods, 5th edition by Lee and Scarborough (there is a free eBook) |

**Course Grade:** Grades in this class are determined as follows:

Quizzes 10%

Homework (online and book) 15%

Write Ups 15%

Tests (4 total) 60%

Grades will be assigned as outlined in the scale below:

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F 0-59%

This course is the third course in the calculus sequence for students majoring in the fields of mathematics, science or engineering. Topics we will cover will include sequences and series of real and complex functions, matrix algebra, linear dependence and independence, eigenvalues and eigenvectors.

**Prerequisites**:

A grade of “C” or better in MTH 252 – Integral Calculus

*\*\*Integration, Summation Notation, Limits, and Solving Systems of Linear Equations\*\**

**Homework:** The sequences and series portion of the class has homework in MyMathLab. The Linear Algebra portion of the class has homework problems listed below. Homework received after the deadline will be marked down 25%. No homework will be accepted after the test for that material.

**Linear Algebra ASSIGNMENTS (these will be paper and pencil)**

Section Assignment

**Please write on your homework if you are following the online or book version of the homework!**

Lesson 1 1,4,7,10,13, 14, 16, 17, 26 – 36 all, 39

Lesson 18 1, 2, 4, 6, 7, 9, 10, 13, 14, 15, 16, 18, 19, 24

Lesson 2 1(verify), 3, 4, 9, 10, 11, 12

Lesson 3 1, 4, 7, 10, 11, 13, 14, 16, 17, 18, 20, 22, 23, 25

Lesson 4 1, 2, 4, 5, 6, 8, 9, 10, 12, 13, 15, 16, 18, 21

Lesson 5 1 - 6 all, 10

Lesson 6 1(a, b, d, e, f), 2(a, b, e, g, h, k), 6, 7

Lesson 7 1, 2, 3, 7, 8, 9, 12, 15, 18

**E-Book version: THIS BOOK IS A DIFFERENT EDITION**

**Lesson 1 1, 4, 7, 10, 13, 14, 16, 17, 24-34, 37**

Lesson 18 1, 2, 4, 6, 7, 9, 10, 13, 14, 15, 16, 18, 19, 24

Lesson 2 1(verify), 3, 4, 9, 10, 11, 12

Lesson 3 1, 4, 7, 10, 11, 13, 14, 16, 17, 18, 20, 22, 23, 25

Lesson 4 1, 2, 4, 5, 6, 8, 9, 10, 12, 13, 15, 16, 18, 21

Lesson 5 1 - 6 all, 8

Lesson 6 1(a, b, d, e, f), 2(a, b, e, g, h, k), 6, 7

Lesson 7 1, 2, 3, 7, 8, 9, 12, 13, 16

**Quizzes**: There will be quizzes covering material that will correlate with problems worked in the homework. I will drop the lowest quiz. Please come see me if you know you must miss a quiz.

**Write-ups**: You are expected to carefully write up the solution to each problem and turn it in on the assigned date. The write up will include: the problem statement, all steps--including the calculus and algebra necessary to solve it, appropriate explanation of the process and the answer clearly identified. *It should be written so that anyone in a MTH 253 class would be able to easily follow and understand your solution.* No late write-ups accepted.

**Tests:** There are 4 tests, please see calendar for approximate dates. If you have a conflict for a test date, please see me to make arrangements.

**LBCC’s Nondiscrimination Policy:** LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws.

**Center for Accessibility Resources statement:**

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the Center for Accessibility Resources (CFAR) and would like to use your accommodations in the class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodations but are not yet registered with CFAR, please visit the [CFAR Website](https://www.linnbenton.edu/cfar) for steps on how to apply for services or call 541-917-4789.

**Academic Honesty:** I assume that you are ethical and honest. However, if there is an incident of academic dishonesty, you will receive a score of zero for that test/assignment and the incident will be reported to the college administration for possible further disciplinary action. If there is a second offense, you will receive a grade of F for the course and the incident will be reported to the college administration with a recommendation for disciplinary action.

### Course Outcomes:

1. Determine whether a sequence or series converges or diverges.
2. Calculate exactly (if possible) or approximate the sum of a convergent series.
3. Understand and utilize power series to perform mathematical calculations.
4. Apply vector and matrix operations to systems of equations and transformation matrices.

253 Tentative Calendar

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| Week | Topics |
| 1 | Intro. 10.1, 10.2 |
| 2 | 10.2, 10.3, 10.4 |
| 3 | (No School Monday) 10.7, 10.5 |
| 4 | 10.6, 10.8 Test 1 |
| 5 | 11.1, 11.2 |
| 6 | 11.3, 11.4, Test 2 |
| 7 | (No School Monday) Lesson 1, 18 |
| 8 | Lessons 2, 3 |
| 9 | Test 3, Lessons 4,5 |
| 10 | Lessons 6,7 |
| Finals | Final Exam |