

## **MATH 5381 Applied Math I (Perturbation Methods)**

**Instructor:** Prof. Regan Beckham

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**Office:** RBN 4012

**Office Hours:** TBA, by appointment

**Class Meeting Time:** MWF 10:10A-11:05A (RBN MLC)

**Required Text:** *Perturbation Methods for Scientist and Engineers* by Bush

If you chose to take this class you will:

- *Read the book* – Read the material being covered prior to attending class and again after.
- *Attend Class* – You should not take this course if you are not committed to attending class.
- *Complete Homework* – Homework completion is vital to the understanding of the material.

### **Grading Policy**

Your final grade will be based on the following:

### **Exams**

There will be **five** 20 point take home exams throughout the semester.

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Your final grade will be no more harsh than the following scale

Percentages

100 - 85 A, below 85 - 70 B, below 70 - 50 C, below 50 - 40 D, below 40 F

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### **A bit about grading**

Below is the grading scheme that will be used for all exam problems. Whether this splits up to each part of a multi-part problem depends on the necessary work to move through each problem.

- 0 - No progress or relevant information given for the problem
- 1 - Some progress which could lead to a correct solution
- 2 - Significant progress, major elements present, partial explanation/proof
- 3 - Essentially complete and correct solution, with minor gaps, errors, or lack of explanation
- 4 - Fully correct and complete solution with all relevant information and explanation

### **UT Tyler Honor Code**

To embrace honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

### **Plagiarism and Academic Dishonesty**

Any work submitted must represent your own effort!

## **Make-up Policy**

Make-ups for documented absences that are required as part of a UT Tyler obligation (e.g. athletes participating in an event, participating in a debate contest, etc.) or for religious observation will be granted. For all make-ups of this type, prior notification of at least one week and documentation are required.

## **Classroom Policy**

When you attend class you are to be actively engaged in the classroom activity. Also, you are to be respectful of those around you and conduct yourself in a collegial manner. Students not adhering to this may be asked to leave the classroom.

## **A bit about study groups**

In my experience, study groups are most successful when the following is done. The problems should be attempted by the group members before the group meets. If problems are worked from start to finish in the group only the strongest students will benefit. You should limit the amount of outside aid you get in the course. I do not recommend tutoring. If you have questions come see *me*.

## **Student Learning Outcomes**

By the end of this course, the successful student will

- have a thorough understanding of perturbation theory and asymptotic
- be able to use the techniques of regular perturbation, strained coordinates, multiple scales, boundary layers, and WKB methods to solve nonlinear differential equations.
- be able to apply perturbation techniques to solve applications from the physical sciences.

For University policies concerning Students Rights and Responsibilities, Grade Replacement/ Forgiveness, State-Mandated Course Drop Policy, Disability Services, Student Absence due to Religious Observance, Student Absence for University-Sponsored Events and Activities, and the Social Security and FERPA Statement please see:

<http://www.uttyler.edu/academicaffairs/syllabuspolicies.pdf>