**Math 1132Q – UCONN at Stamford – Fall Semester 2023 – Calculus II – Room DWTN 305, Mondays and Wednesdays 9:20 am – 11:00 am**

**Instructor:** Cristiano Husu, cristianohusu@sbcglobal.net, 203 329 0489, cristiano.husu@uconn.edu, Office Number 334.

**OFFICE HOURS at the end of each class**

**on Mondays, from 11:00 am to 11:30 am, room DWTN 305 and/or room 334,**

**on Mondays, from 5:55 pm to 6:25 pm, room DWTN 305 and/or room 334,**

**on Tuesdays, from 4:45 pm to 5:15 pm, room DWTN 305 and/or room 334,**

**on Wednesdays, from 11:00 am to 11:30 am, room DWTN 305 and/or room 334,**

**on Wednesdays, from 5:55 pm to 6:25 pm, room DWTN 305 and/or room 334,**

**and on Thursdays, from 4:45 pm to 5:15 pm, room DWTN 305 and/or room 334.**

**Textbook**: *Extensive lecture notes of C. Husu, Homework files, Extra credit projects, Reviews for each examination*, posted on huskyct.uconn.edu, and available on paper, if requested, and Calculus, Early Transcendentals by J. Stewart.

**Course Description**: Formal integration, improper integrals, arc length, infinite sequences and series, parametric equations, polar coordinates using verbal (spoken and written), visual (geometric), precise numerical and analytic methods.

**Prerequisites**: Math 1131Q (recommended preparation a grade of C- or better) or advanced placement credit for calculus (score 4 or 5 on Calculus AB exam, or 3 on the Calculus BC exam). Verbal, geometric and numerical understanding of integration techniques, improper integrals, sequences and series.

*To match individual expectations with the instructor's teaching tools and methods, a preliminary form on the goals, objectives, mathematics background and learning skills of each students will be completed by each students and collected by the instructor*.

**Classwork and Homework**: WebAssign homework will be available *as a rote-learning tool* at huskyct.uconn.edu . Our Stamford UConn Q-Center will help with routine WebAssign questions.

To make sure that each students makes progress toward the objectives of the course, a written sample of each student work will be assigned every two weeks (and collected seven days after the assignment).

Extra credit projects will be available during the semester for students who wish to understand further ramifications of Calculus that are not fully developed in our textbook nor in class.

**Grading Procedure**: The course grade will be the result of the sum of the following four numbers:

1) Classwork (class participation, a strong interest in the development of number skills, careful algebraic display of information, visual and geometry skills) and homework (WebAssign and the written samples collected every two weeks), altogether 20 points (and 20% of the course grade),

2) The first examination on October 2, another 20 points (as 20% of the course grade),

3) The second examination on November 15, another 20 points (as 20% of the course grade),

4) The comprehensive final examination, on a date TBA, the remaining 40 points (as 40%. of the course grade),

5) *Additional points will be available via extra credit work.*

*A total of 90 points (or more) will correspond to the letter A grade for the course.*

*A total of 80 points (up to 89 points) will correspond to the letter B grade (or slightly higher, B+ or A-) for the course.*

*A total of 70 points (up to 79 points) will correspond to the letter C grade (or slightly higher, C+ or B-) for the course.*

*And so forth.*

**No online mobile device will be allowed during the examinations.**

**Day-by-day description of the course:**

| *Week* | *Date* | *Topic* | *Lecture notes* | *Examples and exercises* |
|---|---|---|---|---|
| 1 | 8/28 | **Integration by Parts** | **Lecture notes 1** | **Lecture notes 1ex** |
| 1 | 8/30 | **Trigonometric Integrals** | **Lecture notes 2** | **Lecture notes 2ex** |
| | 9/4 | *Labor-day* | | |
| 2 | 9/6 | **Trigonometric Substitutions** | **Lecture notes 3** | **Lecture notes 3ex** |
| 3 | 9/11 | **Integration of Rational Functions** | **Lecture notes 4** | **Lecture notes 4ex** |
| 3 | 9/13 | **Approximate Integration** | **Lecture notes 5** | |
| 4 | 9/18 | **Improper Integrals** | **Lecture notes 6** | **Lecture notes 6ex** |
| 4 | 9/20 | **Arc Length** | **Lecture notes 7** | |
| 5 | 9/25 | *Review for the first examination on lecture notes 1, 2, 3, 4, 5, 6 and 8* | | |
| 5 | 9/27 | **Infinite Sequences** | **Lecture notes 8** | **Lecture notes 8ex** |
| 6 | 10/2 | *First examination on lecture notes 1, 2, 3, 4, 5, 6 and 8* | | |
| 6 | 10/4 | **Infinite Series. Geometric Series** | **Lecture notes 9** | **Lecture notes 9ex** |
| 7 | 10/9 | **The Integral Test** | **Lecture notes 10** | **Lecture notes 10ex** |
| 7 | 10/11 | **Strategy for testing series – An introduction** | | |
| 8 | 10/16 | **Comparison Tests** | **Lecture notes 11** | **Lecture notes 11ex** |
| 8 | 10/18 | **Alternating Series** | **Lecture notes 12** | **Lecture notes 12ex** |
| 9 | 10/23 | **Absolute Convergence.** | **Lecture notes 13** | **Lecture notes 13ex** |
| | | **Conditional Convergence.** | | |

**(Note that Lecture notes 13 and Lecture notes 13ex include both the Ratio Test and the Root Test)**

**The day-by-day description of the course continues here, below:**

| *Week* | *Date* | *Topic* | *Lecture notes* | *Examples and exercises* |
|---|---|---|---|---|
| 9 | 10/25 | **Power Series** | **Lecture notes 14** | **Lecture notes 14ex** |
| 10 | 10/30 | **Representations of Functions with Power Series** | **Lecture notes 15** | **Lecture notes 15ex** |

**(Lecture notes 16 and Lecture notes 15ex include McLaurin Polynomials and Series, as they are special cases of Taylor Polynomial and Series)**

| | | | | |
|---|---|---|---|---|
| 10 | 11/1 | **Taylor Polynomial and Series** | **Lecture notes 16** | **Lecture notes 16ex** |
| | | **Applications of Taylor Polynomials** | **Lecture notes 16+1** | |
| 11 | 11/6 | **Introduction to Differential Equations** | **Lecture notes 18** | |
| | | **Separable Differential Equations** | **Lecture notes 19** | |
| 11 | 11/8 | *Review for the second exam on lecture notes 8 through 16 (Stewart's Chapter 11)* | | |
| 12 | 11/6 | **Curves defined by Parametric Equations** | **Lecture notes 20 and Lecture notes 20ex** | |
| 12 | 11/15 | *Second exam on lecture notes 8 through 16 (Stewart's Chapter 11)* | | |
| 13 | 11/20 | *Thanksgiving recess* | | |
| 13 | 11/22 | *Thanksgiving recess* | | |
| 14 | 11/27 | **Polar Coordinates** | **Lecture notes 21** | **Lecture notes 20ex** |
| | | **Areas and Lengths in Polar Coordinates** | **Lecture notes 22** | |

**Extra credit: Lecture notes 23 – On the multiplication and division of power series**

| | | | | |
|---|---|---|---|---|
| 14 | 11/29 | *Review for the comprehensive final exam* | | |

15 12/4 and 12/6 Reading days

*On a date and time announced in the first half of November, the comprehensive Final Exam*