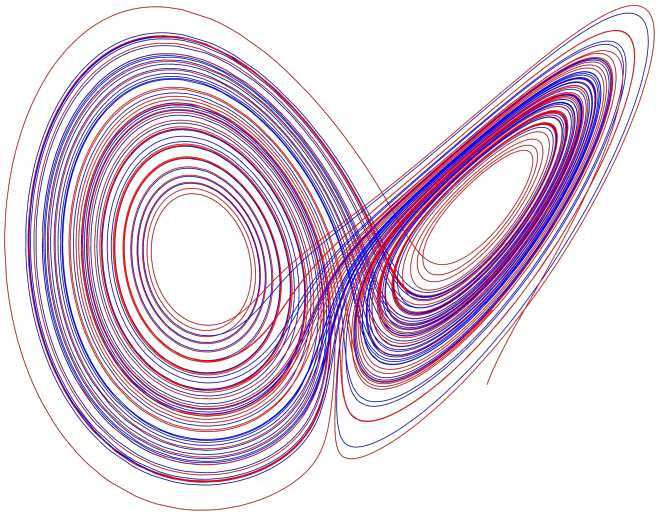
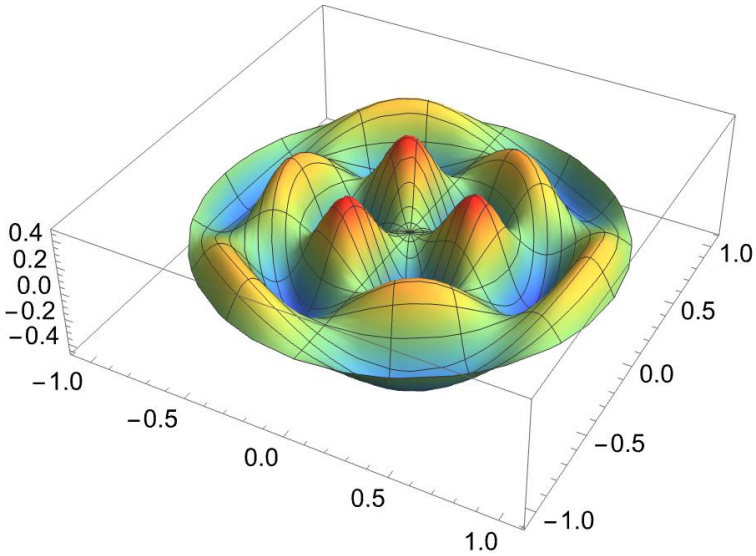
Differential Equations II (4354)

$$\frac{dx}{dt} = \sigma (y - z)$$
$$\frac{dy}{dt} = x (\rho - z) - y$$
$$\frac{dz}{dt} = xy - \beta z$$





$$\frac{\partial^2 u}{\partial t^2} = \frac{1}{r}\frac{\partial}{\partial r}\left(r\frac{\partial u}{\partial r}\right) + \frac{1}{r^2}\frac{\partial^2 u}{\partial \theta^2}$$

Differential Equations II (Math 4354)

Contact information

Instructor: Prof. Katharine Long
Email: katharine.long@ttu.edu
Github: https://github.com/krlong014/CourseNotes
Office: Math 102
When to find me: My scheduled office hours are MW 2-4, and I'm usually around TThF after 2.

Differential Equations II

Required materials

- **Software:** (links here and at my github course page)
  - *Mathematica*: You can get this in several ways:
    - Buy a student license from Wolfram (current cost, $75 per year or $50 per semester)
    - If you like playing with Linux on single-board computers, *Mathematica* is freely available on Raspberry Pi computers running PiOS.
  - *TopHat*: free to TTU students through TTU site license
- **Textbook:**
  - Boyce, DiPrima, and Meade, *Elementary Differential Equations and Boundary Value Problems*. Current edition is 12th, but 9th or later will suffice.
    - Amazon has used copies in good condition for around $20.

Differential Equations II

To do in the next few days

- Get TopHat: quizzes start Monday, 26 Aug.
- First webwork problem set due the night of Wednesday, 28 Aug (actually, 3:00 AM 29th Aug)
  - Refresher questions from linear algebra and DEI.
    - If you find these problems difficult, please get help from me in office hours or by Piazza message
- Get Mathematica & textbook
- Accept invitation to Piazza page for this course

Coming soon

- First written homework will be posted late next week
  - It will require Mathematica for some problems

Assessment and feedback

Type	Weight
Homework: includes written problems (often involving *Mathematica* calculations) 35%, and Webwork (15%). Lowest one dropped for each.	**50%**
Quizzes (roughly 1-2 per lecture, on *TopHat* starting 2nd lecture). Lowest 2 dropped.	**12%**
2 midterm exams (in class, closed book, no notes, no formula sheets)	**10%** each
Final exam (**comprehensive**, in class, closed book, no notes, no formula sheets)	**18%**

- Letter grades are based on a 15 point scale
- Grades are not curved.

Advice

How to survive and thrive in DE2

- Keep up. The quizzes and webwork help you gauge how well you're understanding the material.
- If you don't understand something, speak up sooner rather than later, either in class, in office hours, or on Piazza
- Homework is essential: It's 50% of your grade (35% written, 15% webwork). More importantly, working problems is how you learn.
- Find a good study group, and work with people whose skills complement yours.
- Learn to use *Mathematica* for the grunt work.
- Come to office hours. I don't bite!