

# **Math 4413: Fourier Analysis**

## **Syllabus, Fall 2020**

**Tim Olson, Professor**

Office... Zoom baby Zoom, [olsontch@ufl.edu](mailto:olsontch@ufl.edu)

**Office Hours: 7<sup>th</sup> period MWF or by appointment**

### **Topics:**

- 1. Fourier Series**
- 2. The Discrete Fourier Transform**
- 3. The Fourier Transform**
- 4. Sampling and Interpolation**
- 5. Digital Communications**
- 6. Radar Processing**
- 7. Image Processing**
- 8. Medical Imaging**
- 9. Numeric Methods for PDE's**

### **Suggested Books:**

- **Applied Fourier Analysis: Tim Olson.**
- **<http://www.appliedfourier.com>**

### **Grading Policy:**

- **Projects 1 and 2, over topics 1 and 2: 15 points apiece**
- **Projects 3-6: ( do at least 3 ): 10 points apiece**
  - **Projects must look professional, rather than a couple pages of code and scribbles**
  - **Students may collaborate, but must write up their projects and do the coding individually**
- **Test: Primarily over Chapter 4, or Topic 3. 15 points**
- **Total Points: 75**
- **Grading will be 90, 80, 70 % etc.**

**Honesty and Honor Code: Students should be aware of the honor code of the university and must behave appropriately**

**Class Recordings: We will be recording our classes, in case any of you have any problems with one of the class times, your equipment, etc. In accordance with University Policy I need to put forward the following statement.**

*Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voice recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials by students or any other party is prohibited.*

#### **Class Attendance and make-up exams:**

**“Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:  
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.”**

#### **Accommodations for Disabilities:**

**“Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.”**

#### **Additional Grading Info:**

**<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.**

#### **Instructor Review Info:**

**“Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.”**

#### **Campus Resources:**

##### **Health and Wellness**

##### **U Matter, We Care:**

**If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.**

**Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.**

**Sexual Assault Recovery Services (SARS)**

**Student Health Care Center, 392-1161.**

**University Police Department, 392-1111 (or 9-1-1 for emergencies).  
<http://www.police.ufl.edu/>**

**Academic Resources**

**E-learning technical support, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu). <https://lss.at.ufl.edu/help.shtml>.**

**Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.  
<http://www.crc.ufl.edu/>**