

**EGM 6322 PRINCIPLES OF ENGINEERING ANALYSIS II**  
**PARTIAL DIFFERENTIAL EQUATIONS AND BOUNDARY VALUE PROBLEMS**

**SPRING 2022 SYLLABUS**

**Instructor:** Dr. Oana Cazacu, Office:150 REEF, Shalimar, FL; E-mail: [cazacu@reef.ufl.edu](mailto:cazacu@reef.ufl.edu); Office phone: (850) 833-9350

**Office Hours:** Dr. Cazacu: Tuesday, 4:00-6:00 pm CT; for ensuring privacy, one-on-one Zoom meetings; for scheduling please contact instructor by email the day prior

TA: TBA

**Gainesville Campus Teaching Assistant:** TBA

**Class schedule:**

**Lectures are taught live and professionally recorded in the REEF studio in Shalimar, FL (off-campus graduate institute, 300 miles from main campus)**

**Shalimar Schedule: REEF Studio, Tuesday: 10:00 AM -12:00 and 1:00-2:00 PM**

**Gainesville Schedule: In previous terms, the video recordings of the lectures were shown in the CSE Bldg. For Spring 2022, the students are NOT REQUIRED to view the lectures in CSE.**

**Course Description for EGM 6322- 3 credit hours**

Partial differential equations of first and second order. Hyperbolic, parabolic, and elliptic equations including the wave, diffusion, and Laplace equations. Integral and similarity transforms. Boundary value problems of the Dirichlet and Neumann type. Green's functions, conformal mapping techniques, and spherical harmonics. Poisson, Helmholtz, and Schroedinger equations.

**Course Prerequisites:**

Completion of elementary calculus and undergraduate ordinary differential equations course such as EGM 4311 or MAP 4305 and graduate ordinary differential equations course such as EGM 6321 or permission of the instructor.

### ***Course Objectives***

The goal of EGM 6322 is to provide the students with the ability to find the proper mathematical setup for given physical and engineering boundary value problems, understanding of the qualitative “behavior” of the solutions of PDEs, methodologies to find closed-form solutions, and rationale for adopting specific numerical approaches.

**Textbooks:** No required text. Course notes are developed by the instructor. The following books are recommended for reference:

- **STANLEY J FARLOW, PARTIAL DIFFERENTIAL EQUATIONS FOR SCIENTISTS AND ENGINEERS, DOVER PUBLICATIONS**
- **KING, BILLINGHAM, OTTO, DIFFERENTIAL EQUATIONS, CAMBRIDGE UNIV. PRESS**
- **E. BUTKOV: MATHEMATICAL PHYSICS (1968 EDITION AVAILABLE AT AMAZON.COM)**
- **BERG, ELEM.PARTIAL DIFF. EQUATIONS**

### **Policies and Procedures**

#### **Attendance Policy, Class Expectations, and Make-Up Policy**

In person attendance is not required. You are personally responsible for all information disseminated during the lectures and posted on Canvas. This means knowing all homework due dates, knowing when exams will be given, where they will be given, what material they will cover, and knowing all material, handouts, and announcements made in the lectures, whether or not you were present. Thus, if you miss a lecture, it is your responsibility to obtain all information presented during that lecture. "I missed that information" or "I was unaware of that information" will not be accepted as valid excuses.

**Exams:** One written exam will be given on March 3<sup>rd</sup>, during the regularly scheduled class time: 2hrs duration. No exams will be given prior to the scheduled dates and no makeup exams will be given. Exams are open notes. No other written materials or books, tables, calculators are allowed. A second take-home special assignment will be posted on Thursday, April 7<sup>th</sup>; the deadline for submission of this assignment is April 14<sup>th</sup>. This take-home exam will count as Exam 2.

**Exam 1: Thursday, March 3<sup>rd</sup>; Exam 2 (take home): Thursday, April 7<sup>th</sup>**

**Grades:** Grades will be determined using these weights: 25% Homework, 40% Exam 1, 35% Exam 2.

**Academic Honesty:** All students admitted to the University of Florida have signed a statement of academic honesty committing them to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams taken in this class and all others. All students should read the University of Florida academic honesty statement available on the web at [http://www.dso.ufl.edu/Academic\\_Honesty.html](http://www.dso.ufl.edu/Academic_Honesty.html). Any student caught cheating on an exam will receive either a failing grade on the exam or, at the instructor's discretion, a failing grade in the course. ALL incidents of possible cheating will be reported to the Office of Student Judicial Affairs.

**Course web site:** A course web site is established; students will be expected to check it on a regular basis for up-to-date course information. This may include changes to the syllabus, homework assignment due dates, and exam schedules. The course web site will be accessible from Canvas.

### *Grading Policy*

<b>Percent</b>	<b>Grade</b>	<b>Grade Points</b>
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 - 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 79.9	C+	2.33
72.0 - 74.9	C	2.00
69.0 - 71.9	C-	1.67
66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

For individuals in the gray area between two grades, performance on the homework will be used to make the final decision. More information on UF grading policy may be found at: <http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

### ***Students Requiring Accommodations***

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### ***Course Evaluation***

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### ***University Honesty Policy***

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

***Course web site.*** A course web site is established through EDGE. Students will be expected to check it on a regular basis for up-to-date course information. This may include changes to the syllabus, homework assignment due dates, and exam schedules.

***Special Needs.*** If you require accommodations due to a disability, please call me.

### ***Commitment to a Safe and Inclusive Learning Environment***

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Malisa SARNTINORANONT, GRADUATE STUDENT COORDINATOR, (352) 392-8404, [msarnt@ufl.edu](mailto:msarnt@ufl.edu)
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto:nishida@eng.ufl.edu)

### ***Software Use***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

### ***Student Privacy***

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

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

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

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

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

#### **Sexual Discrimination, Harassment, Assault, or Violence**

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)

**Sexual Assault Recovery Services (SARS)** Student Health Care Center, 392-1161.

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

