

## Course Syllabus

### COURSE INFORMATION

- Differential Equations I
- Summer/2019
- Math 3410 510, 3 credit hours
- No required online meeting times. Requires submitting daily work.

### Instructor Contact Information

- Bunyamin Sari, Associate professor of Mathematics
- GAB 414
- Email: [bunyamin.sari@unt.edu](mailto:bunyamin.sari@unt.edu)

### Course Pre-requisites, Co-requisites, and/or Other Restrictions

Students must complete MATH 1720 with a grade of C or better to enroll in this course. Prior or concurrent enrollment in Math 2700 is also recommended.

### Course Description

- Course content: First-order equations, existence-uniqueness theorem, linear equations, separation of variables, higher-order linear equations, systems of linear equations, Laplace transforms.
- In this course the students will learn the basics of ordinary differential equations, applications of them, and how to solve certain classes of equations via various methods.
- Differential equations are very fundamental and required to the sciences and engineering.

### Materials

- Practice problems. See course info page for how to download.
- Suggested free online open access textbook. [Elementary Differential Equations by William Trench](https://digitalcommons.trinity.edu/cgi/viewcontent.cgi?article=1007&context=mono). [\\_\(https://digitalcommons.trinity.edu/cgi/viewcontent.cgi?article=1007&context=mono\)\\_](https://digitalcommons.trinity.edu/cgi/viewcontent.cgi?article=1007&context=mono)
- Various YouTube videos

### Teaching Philosophy

The nature of the course requires a lot of practice more than anything. Therefore, it is structured to help students do more practice problems.

### TECHNICAL REQUIREMENTS/ASSISTANCE

UIT Help Desk: <http://www.unt.edu/helpdesk/index.htm>  
(<http://www.unt.edu/helpdesk/index.htm>)

The University of North Texas provides student technical support in the use of Canvas and supported resources. The student help desk may be reached at:

Email: [helpdesk@unt.edu \(mailto:helpdesk@unt.edu\)](mailto:helpdesk@unt.edu)

Phone: 940.565-2324

In Person: Sage Hall, Room 130

**Hours** [\\_\(https://www.unt.edu/helpdesk/hours.htm\)](https://www.unt.edu/helpdesk/hours.htm) are:

- Monday-Thursday 8am-midnight
  - Friday 8am-8pm
  - Saturday 9am-5p
  - Sunday 8am-midnight
- 
- Browser requirements: <https://clear.unt.edu/supported-technologies/canvas/requirements>  
[\\_\(http://kb.blackboard.com/pages/viewpage.action?pageId=101285989\)](http://kb.blackboard.com/pages/viewpage.action?pageId=101285989)
  - Computer and Internet Literacy: [http://clt.odu.edu/oso/index.php?src=pe\\_comp\\_lit](http://clt.odu.edu/oso/index.php?src=pe_comp_lit)  
[\\_\(http://clt.odu.edu/oso/index.php?src=pe\\_comp\\_lit\)](http://clt.odu.edu/oso/index.php?src=pe_comp_lit)

### Minimum Technical Skills Needed

[See how to submit work page.](#)

### Student Academic Support Services

- **Academic Resources:** [\\_\(https://www.unt.edu/academics\)](https://www.unt.edu/academics) where to buy textbooks and supplies, access academic catalogs and programs, register for classes, and more
- **Code of Student Conduct:** [\\_\(https://deanofstudents.unt.edu/conduct\)](https://deanofstudents.unt.edu/conduct) provides Code of Student Conduct along with other useful links
- **Office of Disability Accommodation:** [\\_\(http://disability.unt.edu/\)](http://disability.unt.edu/) exists to prevent discrimination based on disability and to help students reach a higher level of independence
- **Counseling and Testing Services:** [\\_\(http://studentaffairs.unt.edu/counseling-and-testing-services\)](http://studentaffairs.unt.edu/counseling-and-testing-services) provides counseling services to the UNT community, as well as testing services; such as admissions testing, computer-based testing, career testing, and other tests
- **UNT Libraries:** [\\_\(http://www.library.unt.edu/\)](http://www.library.unt.edu/) library services
- **UNT Learning Center:** [\\_\(https://learningcenter.unt.edu/home\)](https://learningcenter.unt.edu/home) provides a variety of services, including tutoring, to enhance the student academic experience
- **UNT Writing Center:** [\\_\(http://writingcenter.unt.edu/\)](http://writingcenter.unt.edu/) offers free writing tutoring to all UNT students, undergraduate and graduate

- **Succeed at UNT:** [\(https://success.unt.edu/\)](https://success.unt.edu/) information regarding how to be a successful student at UNT

## COMMUNICATING WITH YOUR INSTRUCTOR

When emailing me please include **Math 3410** in the subject line otherwise I may never see it. I usually reply emails within 24 hours. You can also use Canvas Discussion page to post questions.

## ASSESSMENT & GRADING

### Assessments

The assessment will be based on daily homework assignments, weekly midterm exams, and finals. See the [grading page](#) for details.

### Grading

#### Total Points Possible for Semester/Grading Scale = 100

Throughout the term you will be able to see your standing and predict your grade by adding up points from assignments and exams. 90 and above is sufficient to get an A; 80 and above is sufficient to get a B; 70 and above is sufficient to get a C; 60 and above is sufficient to pass.

## COURSE EVALUATION

Towards the end of the summer term you will be asked to do online course evaluation as you have been doing for your other classes. Please make sure to complete the evaluation as it is especially important to get feedback for this online class.

## COURSE POLICIES

### Assignment Policy

See [how to submit work](#) page for details.

The University is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the UNT Student Help Desk: [helpdesk@unt.edu](mailto:helpdesk@unt.edu) (<mailto:helpdesk@unt.edu>) or 940.565.2324. The instructor and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.

### Late Work

Late work will not be accepted. However, there are 20 possible extra points to be earned as explained in grading page, so you will have chance to make up.

### **Syllabus Change Policy**

The instructor reserves right to change any info set in the syllabus as appropriate.

## **UNT POLICIES**

### **Academic Integrity Policy**

**As per UNT policy, a syllabus for a course MUST include the following statement:**

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. [Insert specific sanction or academic penalty for specific academic integrity violation.

### **ADA Policy**

**As per UNT policy, a syllabus for a course MUST include the following statement:**

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website at [disability.unt.edu \(disability.unt.edu\)](https://disability.unt.edu).

### **Course Safety Procedures (for Laboratory Courses)**

**As per UNT policy, a syllabus for a course MUST include the following statement for all applicable laboratory courses:**

Students enrolled in [insert class name] are required to use proper safety procedures and guidelines as outlined in UNT Policy 06.038 Safety in Instructional Activities. While working in laboratory sessions, students are expected and required to identify and use proper safety guidelines in all activities requiring lifting, climbing, walking on slippery surfaces, using equipment

and tools, handling chemical solutions and hot and cold products. Students should be aware that the UNT is not liable for injuries incurred while students are participating in class activities. All students are encouraged to secure adequate insurance coverage in the event of accidental injury. Students who do not have insurance coverage should consider Standard Syllabus Statements Related Policy 06.049 Course Syllabi Requirements obtaining Student Health Insurance. Brochures for student insurance are available in the UNT Student Health and Wellness Center. Students who are injured during class activities may seek medical attention at the Student Health and Wellness Center at rates that are reduced compared to other medical facilities. If students have an insurance plan other than Student Health Insurance at UNT, they should be sure that the plan covers treatment at this facility. If students choose not to go to the UNT Student Health and Wellness Center, they may be transported to an emergency room at a local hospital. Students are responsible for expenses incurred there.

### **Emergency Notification & Procedures**

**As per UNT policy, a syllabus for a course MUST include the following statement:**

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials.

### **Retention of Student Records**

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Blackboard online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

### **Acceptable Student Behavior**

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for

student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at [deanofstudents.unt.edu/conduct](https://deanofstudents.unt.edu/conduct) (<https://deanofstudents.unt.edu/conduct>).

### **Access to Information - Eagle Connect**

Students' access point for business and academic services at UNT is located at: [my.unt.edu](https://my.unt.edu/) (<https://my.unt.edu/>). All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail: [eagleconnect.unt.edu/](http://it.unt.edu/eagleconnect) (<http://it.unt.edu/eagleconnect>).

### **Student Evaluation Administration Dates**

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 [insert administration dates] of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" ([no-reply@iasystem.org](mailto:no-reply@iasystem.org) ([no-reply@iasystem.org](mailto:no-reply@iasystem.org))) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website at <http://spot.unt.edu/> (<http://spot.unt.edu/>) or email [spot@unt.edu](mailto:spot@unt.edu) ([spot@unt.edu](mailto:spot@unt.edu)).

### **Sexual Assault Prevention**

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at [SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu) ([SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu)) or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at [oeo@unt.edu](mailto:oeo@unt.edu) ([oeo@unt.edu](mailto:oeo@unt.edu)) or at (940) 565 2759.

### **Important Notice for F-1 Students taking Distance Education Courses**

**The following is not a required syllabus component, but an important element for online course syllabi.**

### **Federal Regulation**

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website at <http://www.ecfr.gov/> [\(http://www.ecfr.gov/\)](http://www.ecfr.gov/). The specific portion concerning distance education courses is located at Title 8 CFR 214.2 Paragraph (f)(6)(i)(G).

The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken on-line or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to completion of the class. An on-line or distance education course is a course that is offered principally through the use of television, audio, or computer transmission including open broadcast, closed circuit, cable, microwave, or satellite, audio conferencing, or computer conferencing. If the F-1 student's course of study is in a language study program, no on-line or distance education classes may be considered to count toward a student's full course of study requirement.

### **University of North Texas Compliance**

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experience integral to the completion of this course.

If such an on-campus activity is required, it is the student's responsibility to do the following:

- (1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course.
- (2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose.

Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-

2195 or email [internationaladvising@unt.edu](mailto:internationaladvising@unt.edu) (<mailto:internationaladvising@unt.edu>) to get clarification before the one-week deadline.

## Student Verification

**The following is not a required syllabus component, but an important element for online course syllabi.**

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See [UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002) (<https://policy.unt.edu/policy/07-002>).

## Use of Student Work

**The following is not a required syllabus component, but an important element for online course syllabi.**

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class and the University is not entitled to use any student work without the student's permission unless all of the following criteria are met:

- The work is used only once.
- The work is not used in its entirety.
- Use of the work does not affect any potential profits from the work.
- The student is not identified.
- The work is identified as student work.

If the use of the work does not meet all of the above criteria, then the University office or department using the work must obtain the student's written permission.

Download the UNT System Permission, Waiver and Release Form

## Transmission and Recording of Student Images in Electronically-Delivered Courses

**The following is not a required syllabus component, but an important element for online course syllabi.**

1. No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery.























2. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release in order to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.
3. Instructors who video-record their class lectures with the intention of re-using some or all of recordings for future class offerings must notify students on the course syllabus if students' images may appear on video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings.














Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear on video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings.

No notification is needed if only audio and slide capture is used or if the video only records the instructor's image. However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

## Course Summary:

Date	Details	
Thu Jun 13, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315318">Course survey</a> <a href="https://unt.instructure.com/courses/15763/assignments/315318">https://unt.instructure.com/courses/15763/assignments/315318</a>	due by 11:59p
Mon Jul 8, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315321">Homework 1 Order and linearity</a> <a href="https://unt.instructure.com/courses/15763/assignments/315321">https://unt.instructure.com/courses/15763/assignments/315321</a>	due by 11:59p
Tue Jul 9, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315330">HW2-Integrating-factor</a> <a href="https://unt.instructure.com/courses/15763/assignments/315330">https://unt.instructure.com/courses/15763/assignments/315330</a>	due by 11:59p
Wed Jul 10, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315331">HW3-Separable-equations</a> <a href="https://unt.instructure.com/courses/15763/assignments/315331">https://unt.instructure.com/courses/15763/assignments/315331</a>	due by 11:59p
Thu Jul 11, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315332">HW4-Mathematical models</a> <a href="https://unt.instructure.com/courses/15763/assignments/315332">https://unt.instructure.com/courses/15763/assignments/315332</a>	due by 11:59p

Date	Details	
Fri Jul 12, 2019	 <b>Midterm exam 1- Morning</b> <a href="https://unt.instructure.com/courses/15763/assignments/315311">https://unt.instructure.com/courses/15763/assignments/315311</a>	due by 9:30am
	 <b>Midterm Exam 1- Evening</b> <a href="https://unt.instructure.com/courses/15763/assignments/315315">https://unt.instructure.com/courses/15763/assignments/315315</a>	due by 10pm
	 <b>Midterm exam 1-LW</b> <a href="https://unt.instructure.com/courses/15763/assignments/317858">https://unt.instructure.com/courses/15763/assignments/317858</a>	due by 10pm
Mon Jul 15, 2019	 <b>HW5-Existence and uniqueness theorems</b> <a href="https://unt.instructure.com/courses/15763/assignments/315333">https://unt.instructure.com/courses/15763/assignments/315333</a>	due by 11:59p
Tue Jul 16, 2019	 <b>HW6-Direction fields and autonomous equations</b> <a href="https://unt.instructure.com/courses/15763/assignments/315334">https://unt.instructure.com/courses/15763/assignments/315334</a>	due by 11:59p
Wed Jul 17, 2019	 <b>HW7-Exact equations</b> <a href="https://unt.instructure.com/courses/15763/assignments/315335">https://unt.instructure.com/courses/15763/assignments/315335</a>	due by 11:59p
Fri Jul 19, 2019	 <b>Midterm Exam 2-Morning</b> <a href="https://unt.instructure.com/courses/15763/assignments/315313">https://unt.instructure.com/courses/15763/assignments/315313</a>	due by 9:30am
	 <b>Midterm Exam 2- Evening</b> <a href="https://unt.instructure.com/courses/15763/assignments/315312">https://unt.instructure.com/courses/15763/assignments/315312</a>	due by 9:30pm
Sat Jul 20, 2019	 <b>Midterm exam 2 LW</b> <a href="https://unt.instructure.com/courses/15763/assignments/320808">https://unt.instructure.com/courses/15763/assignments/320808</a>	due by 8pm
Mon Jul 22, 2019	 <b>HW8-Second order linear homogeneous constant coefficients equations</b> <a href="https://unt.instructure.com/courses/15763/assignments/315336">https://unt.instructure.com/courses/15763/assignments/315336</a>	due by 11:59p
Tue Jul 23, 2019	 <b>HW9-Superposition principle and existence and uniqueness</b> <a href="https://unt.instructure.com/courses/15763/assignments/315337">https://unt.instructure.com/courses/15763/assignments/315337</a>	due by 11:59p
Wed Jul 24, 2019	 <b>HW10-The Wronskian and the fundamental solutions</b> <a href="https://unt.instructure.com/courses/15763/assignments/315322">https://unt.instructure.com/courses/15763/assignments/315322</a>	due by 11:59p
Fri Jul 26, 2019	 <b>Midterm exam 3- Morning</b> <a href="https://unt.instructure.com/courses/15763/assignments/315320">https://unt.instructure.com/courses/15763/assignments/315320</a>	due by 9:30am
	 <b>Midterm exam 3- Evening</b> <a href="https://unt.instructure.com/courses/15763/assignments/315316">https://unt.instructure.com/courses/15763/assignments/315316</a>	due by 9:30pm
	 <b>Midterm 3 LW</b> <a href="https://unt.instructure.com/courses/15763/assignments/324237">https://unt.instructure.com/courses/15763/assignments/324237</a>	due by 10pm

Date	Details	
Mon Jul 29, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315323">HW11-Understanding non-homogeneous equations (https://unt.instructure.com/courses/15763/assignments/315323)</a>	due by 11:59p
Tue Jul 30, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315324">HW12-Method of undetermined coefficients (https://unt.instructure.com/courses/15763/assignments/315324)</a>	due by 11:59p
Wed Jul 31, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315325">HW13-Variation of parameters (https://unt.instructure.com/courses/15763/assignments/315325)</a>	due by 11:59p
Thu Aug 1, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315326">HW14-Reduction of order and Euler equations (https://unt.instructure.com/courses/15763/assignments/315326)</a>	due by 11:59p
Fri Aug 2, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315310">Midterm exam 4-Morning (https://unt.instructure.com/courses/15763/assignments/315310)</a>	due by 9:45am
	 <a href="https://unt.instructure.com/courses/15763/assignments/315317">Midterm exam 4- Evening (https://unt.instructure.com/courses/15763/assignments/315317)</a>	due by 9:45pm
Mon Aug 5, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/329502">Midterm 4 upload (https://unt.instructure.com/courses/15763/assignments/329502)</a>	due by 5p
	 <a href="https://unt.instructure.com/courses/15763/assignments/315327">HW15-Laplace transform-definition, shift and derivative formulas (https://unt.instructure.com/courses/15763/assignments/315327)</a>	due by 11:59p
Tue Aug 6, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315328">HW16-Inverse Laplace transforms (https://unt.instructure.com/courses/15763/assignments/315328)</a>	due by 11:59p
Wed Aug 7, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/315329">HW17-Laplace method (https://unt.instructure.com/courses/15763/assignments/315329)</a>	due by 11:59p
Fri Aug 9, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/335736">Final exam Morning (https://unt.instructure.com/courses/15763/assignments/335736)</a>	due by 10am
	 <a href="https://unt.instructure.com/courses/15763/assignments/335737">Final Exam Evening (https://unt.instructure.com/courses/15763/assignments/335737)</a>	due by 10pm
Sat Aug 10, 2019	 <a href="https://unt.instructure.com/courses/15763/assignments/336410">Final exam LW (https://unt.instructure.com/courses/15763/assignments/336410)</a>	due by 11:59p