MATH 4520/5400: Introduction to Functions of a Complex Variable

Fall 2022, MWF 10:00 – 10:50 am, BLB 225

Instructor Contact

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Office Location: GAB 417B  
Office Hours: M 4-5, W 2-3  
Email: ralf.schmidt@unt.edu

Course Description

Complex numbers, complex functions, analytic and harmonic functions, sequences and power series, complex integration, Laurent series, residue theory

Materials

*Complex Analysis for Mathematics and Engineering*, by J. Matthews and R. Howell, 6th edition, Jones and Bartlett

Grading

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage of Final Grade</th>
</tr>
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<tbody>
<tr>
<td>Homworks</td>
<td>15%</td>
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<tr>
<td>Exam 1</td>
<td>25%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>25%</td>
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<tr>
<td>Final</td>
<td>35%</td>
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For a grade of …

<table>
<thead>
<tr>
<th>… you need at least this many points:</th>
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<tbody>
<tr>
<td>Students in Math 4520</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
</tbody>
</table>
# Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>08/29</td>
<td>1.2</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Week 2</td>
<td>09/05</td>
<td>Labor Day – no class</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Week 3</td>
<td>09/12</td>
<td>2.1</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Week 4</td>
<td>09/19</td>
<td>2.4</td>
<td>2.5</td>
<td>3.1</td>
</tr>
<tr>
<td>Week 5</td>
<td>09/26</td>
<td>3.2</td>
<td>Review</td>
<td>Exam 1</td>
</tr>
<tr>
<td>Week 6</td>
<td>10/03</td>
<td>3.3</td>
<td>4.1</td>
<td>4.3</td>
</tr>
<tr>
<td>Week 7</td>
<td>10/10</td>
<td>4.4</td>
<td>5.1</td>
<td>5.2</td>
</tr>
<tr>
<td>Week 8</td>
<td>10/17</td>
<td>5.3</td>
<td>5.4</td>
<td>6.1</td>
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<tr>
<td>Week 9</td>
<td>10/24</td>
<td>6.2</td>
<td>6.3</td>
<td>6.4</td>
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<tr>
<td>Week 10</td>
<td>10/31</td>
<td>6.5</td>
<td>Review</td>
<td>Exam 2</td>
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<tr>
<td>Week 11</td>
<td>11/07</td>
<td>6.6</td>
<td>7.1</td>
<td>7.2</td>
</tr>
<tr>
<td>Week 12</td>
<td>11/14</td>
<td>7.3</td>
<td>7.4</td>
<td>7.5</td>
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<tr>
<td>Week 13</td>
<td>11/21</td>
<td>8.1</td>
<td>Thanksgiving – no class</td>
<td>Thanksgiving – no class</td>
</tr>
<tr>
<td>Week 14</td>
<td>11/28</td>
<td>8.2</td>
<td>8.3</td>
<td>8.4</td>
</tr>
<tr>
<td>Week 15</td>
<td>12/05</td>
<td>8.7</td>
<td>Review</td>
<td>Reading Day – no class</td>
</tr>
</tbody>
</table>

**Final Exam:** Saturday, 12/10, 8:00 am – 10:00 am, BLB 225

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### Exam Dates

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>9/30/2022</td>
<td>10:00 – 10:50 am</td>
<td>BLB 225</td>
</tr>
<tr>
<td>Exam 2</td>
<td>11/4/2022</td>
<td>10:00 – 10:50 am</td>
<td>BLB 225</td>
</tr>
<tr>
<td>Final Exam</td>
<td>12/10/2022</td>
<td>8:00 – 10:00 am</td>
<td>BLB 225</td>
</tr>
</tbody>
</table>
Course Policies

Attendance
This is a face-to-face class. No recordings. You are expected to attend all classes. Absences are governed by UNT policy 06.039. To obtain an excused absence from the instructor, you must request the absence in writing as early as possible and provide satisfactory evidence.

Students who miss an exam because of an excused absence will be offered to replace the missing exam score by the score on the final exam. Alternatively, upon request, a make-up exam will be offered.

Students who miss a homework assignment because of an excused absence will be given the opportunity to make up the missed assignment.

Examination Policy
No books, notes or calculators.

Assignment Policy
Homework assignments will be collected, graded and returned via Canvas.

Syllabus Change Policy
Provisions in this syllabus may change. Any changes will be announced in class or communicated via e-mail or Canvas.
Welcome to UNT!

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT’s full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

Rules of Engagement

Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:

- While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law will not be tolerated.
- Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.
- Ask for and use the correct name and pronouns for your instructor and classmates.
- Speak from personal experiences. Use “I” statements to share thoughts and feelings. Try not to speak on behalf of groups or other individual’s experiences.
- Use your critical thinking skills to challenge other people’s ideas, instead of attacking individuals.
- Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”
- Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
- Avoid using “text-talk” unless explicitly permitted by your instructor.
- Proofread and fact-check your sources.
- Keep in mind that online posts can be permanent, so think first before you type.

See these Engagement Guidelines (https://clear.unt.edu/online-communication-tips) for more information.

Online Course System

The University is committed to providing a reliable online course system to all users. However, part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UIT Help Desk: UIT Student Help Desk site (https://www.unt.edu/helpdesk)
Email: helpdesk@unt.edu
Phone: 940-565-2324
In Person: Sage Hall, Room 130
Walk-In Availability: 8am-9pm

Telephone Availability:

- Sunday: noon-midnight
- Monday-Thursday: 8am-midnight
- Friday: 8am-8pm
- Saturday: 9am-5pm

Laptop Checkout: 8am-7pm

For additional support, visit Canvas Technical Help (https://community.canvaslms.com/docs/DOC-10554-4212710328)

UNT Policies

Academic Integrity Policy
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.

ADA Policy
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 reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the ODA website (https://disability.unt.edu/).

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)
The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Emergency Notification & Procedures
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 Canvas 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 Canvas 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. Visit UNT’s Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

Access to Information - Eagle Connect
Students’ access point for business and academic services at UNT is located at: 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 Eagle Connect (https://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 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) 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 (http://spot.unt.edu/) or email spot@unt.edu.

Survivor Advocacy
UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as 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. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-5652648.
Academic Support & Student Services

Student Support Services

Mental Health
UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- **Student Health and Wellness Center** ([https://studentaffairs.unt.edu/student-health-and-wellness-center](https://studentaffairs.unt.edu/student-health-and-wellness-center))
- **Counseling and Testing Services** ([https://studentaffairs.unt.edu/counseling-and-testing-services](https://studentaffairs.unt.edu/counseling-and-testing-services))
- **UNT Care Team** ([https://studentaffairs.unt.edu/care](https://studentaffairs.unt.edu/care))
- **UNT Psychiatric Services** ([https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry))
- **Individual Counseling** ([https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling))

Chosen Names
A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- **UNT Records**
- **UNT ID Card**
- **UNT Email Address**
- **Legal Name**

*UNT euIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

Pronouns
Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don’t assume someone’s name, we should also ask and not assume someone’s pronouns.

You can [add your pronouns to your Canvas account](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling) so that they follow your name when posting to discussion boards, submitting assignments, etc.

Below is a list of additional resources regarding pronouns and their usage:

- What are pronouns and why are they important?
- How do I use pronouns?
- How do I share my pronouns?
- How do I ask for another person’s pronouns?
- How do I correct myself or others when the wrong pronoun is used?
Additional Student Support Services

- Registrar (https://registrar.unt.edu/registration)
- Financial Aid (https://financialaid.unt.edu)
- Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)
- Career Center (https://careercenter.unt.edu)
- Multicultural Center (https://idea.unt.edu/multicultural-center)
- Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
- Pride Alliance (https://idea.unt.edu/pridealliance)
- UNT Food Pantry (https://studentaffairs.unt.edu/food-pantry)

Academic Support Services

- Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
- Academic Success Center (https://success.unt.edu/asc)
- UNT Libraries (https://library.unt.edu)
- Writing Center (https://writingcenter.unt.edu)
- Math Lab (https://learningcenter.unt.edu/math-lab)

Emergency Notification and Procedures

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