

**Changes may be made to this document, and linked pages or files, before the semester starts. Some links may not work until August 20, 2021.**

## Syllabus and course information

### MAA 4211 — Advanced Calculus 1 Section 1216 (26002), Fall 2021 MWF 5th period, Anderson 32

[Link to class home page](#)

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**Syllabus (course content):** A rigorous treatment of concepts and tools learned in Calculus 1, Calculus 2, and/or precalculus. We will cover chapters 1–7 of the textbook, with a few omissions and additions. General topics will include:

- basic concepts of sets and functions (just a quick review, since you should have seen this in prerequisite courses);
- the real number system;
- sequences and series of real numbers;
- limits, continuity, and uniform continuity of functions of a real variable;
- differentiation of real-valued functions of a real variable, including the Mean Value Theorem and some of its consequences;
- sequences and series of real-valued functions of a real variable; pointwise and uniform convergence; power series;
- the Riemann integral.

**Textbook:** Stephen Abbott, *Understanding Analysis*, 2nd edition (2015).

**Tentative, approximate weekly schedule of lectures.** Click [here](#). You are expected to read the relevant material in the appropriate chapter-section of the textbook no later than the day after we cover that material in class.

### Goals of course:

- For the student to master the course-content.
- For the student to become accustomed to communicating mathematical ideas precisely and clearly, in written form.
- To prepare the student for what will be expected of him or her in a graduate program in mathematics.

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### Communicating with Dr. Groisser outside class

- **Office Hours:**
  - **Virtual office hours:** Tentatively, Tuesday 7th period (1:55-2:45) and Wednesday 9th period (4:05-4:55). These will be set up as Zoom meetings in Canvas.
  - **In-person office hour:** Tentatively, Friday 9th period (4:05-4:55). My office is Little Hall 308. Consistent with UF's current policy, *I require you to wear a mask at all times in my office, and expect you to wear one anywhere else in Little Hall.* Please come early in the period or let me know to expect you later; otherwise I may not stay in my office for the whole period. Check [my schedule](#) for updates.

Students who can't make scheduled office hours may see me by appointment on most weekdays (but *never on a Thursday*). See also the statement about office hours in the [attendance policy](#).

**If you have the flu or similar contagious disease, or think you might, please do not come to my office.**

(This request for common courtesy has been in all my syllabi since Fall 2009; see [http://dgarchive.com/classes/3473\\_f09/syllabus.html#officehrs](http://dgarchive.com/classes/3473_f09/syllabus.html#officehrs), for example. There has never been a single complaint about it, and it is not a special request made for students with COVID-19 symptoms, so I see no valid reason to remove it now.)

- **Emailing me.** I receive a ton of email, so please be aware that:
  - **I don't answer email that lacks an *informative* subject line and the sender's full name.**

I won't answer math questions by email. An interactive conversation is needed. **Email is not a substitute for seeing me in office hours.**

- I may not respond to email that asks questions that are answered in items you should have read (for example: this syllabus, the class home page, the homework rules and assignments page, solutions handouts, emails I've sent to the class, and announcements I've posted in Canvas), or that should be (or should have been) asked in office hours.
- In general I answer students' emails **only on days that I normally have office hours, and only at certain times**. On office-hour days, I'll generally respond to emails that arrive before the halfway mark of my office hour. *Exception*: I generally don't wait till the next office hour to respond to emails inquiring about (possible) typos in a homework assignment, or informing me of some problem with one of my course webpages.
- I don't provide individualized grade information by email.
- I won't open attachments (or follow links) that look suspicious to me. I generally delete, without fully reading, any email that contains these.
- My email address is located [here](#).
- **Communications from me.** You are required to read fully, and reasonably promptly, any communications I send you. This includes, but may not be limited to, emails (either to the class listserv or to you personally) and announcements on Canvas.

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### Lecture modality

Barring a rule-change by UF after the writing of this document, this class will meet in person. *I will not post my lecture notes, and I do not plan to record my lectures.* An August 18, 2021 rule-change **allows** (not *requires*) "some instructors ... to allow residential students registered for in-person courses to participate remotely for some or all of the Fall term."

Since I am **required** to give face-to-face lectures, allowing students to choose between remote and in-person participation would turn this class into a hybrid-delivery course. **I will not teach in a hybrid format.** If you want the flexibility to choose between remote and in-person attendance, look for classes and instructors that offer this possibility, and *do not take my section of MAA4211.*

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### COVID-19 precautions

As of this writing, [CDC guidance](#) on mask-wearing is: "To maximize protection from the [Delta variant](#) and prevent possibly spreading it to others, wear a mask indoors in public if you are in an [area of substantial or high transmission](#)." Every county in Florida currently meets the definition of an "area of substantial or high transmission."

UF's August 6, 2019 [The Campus Brief](#) newsletter, authored by six of UF's upper administrators including the Provost, stated the following (emphasis added by me):

COVID-19 cases are surging **because of the new delta variant and the large numbers of people who are unvaccinated**, setting new local and state records for hospitalizations.

**All of us at the University of Florida have an obligation to each do our part to prevent further transmission of COVID-19. ... It is the right thing to do—and medical experts say vaccination and masking are the best ways to do it.**

Therefore, we are advising you of the following steps we are taking in our efforts to ensure a safe and successful fall semester:

1. Effective immediately, in light of new guidance from the Centers for Disease Control and Prevention, **we expect everyone to wear a mask at all times when inside any UF facility, even if you are vaccinated.** ... Recent studies and guidance from the CDC state that **both unvaccinated and vaccinated individuals can transmit the current COVID-19 variant to unvaccinated persons.**
2. **If you are not vaccinated, get vaccinated.** If possible, students should aim to be fully vaccinated ... no later than August 22. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Our UF Health experts tell us that **even if you've had COVID-19, you still need to get vaccinated.**
3. If you are sick, stay home and self-quarantine. ... Please call your primary care provider if you are ill and need immediate care.

...

**... Quarantined or isolated students will miss classes, and we are unable to offer an online version of every class.**

...

**... Anyone who chooses not to be vaccinated assumes a significant risk of contracting COVID-19 and spreading it to others.** ... UF cannot be responsible for that risk, given the ready availability of vaccine, and **cannot modify the operation of the entire university for a minority of people who may choose not to be vaccinated.**

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In closing, we implore you to do everything possible to keep yourself and those around you safe from this **highly contagious and deadly virus.**

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### **Fall 2021 uncertainties**

As of this writing (August 18, 2021), nobody knows what impact COVID-19 will have on UF once the semester begins. There may unfold circumstances such as widespread illness or UF rule-changes or clarifications—of which at least five since August 6 have affected my planning and/or this syllabus—that make it impossible or infeasible (as judged by me) for me to follow this syllabus to the letter. If so, then based on those *actual, not hypothetical*, circumstances, I will evaluate at that time what changes are possible, and **may** (read carefully: *may*) make some changes to some items in this syllabus. As of August 18, there are so many plausible ways the semester *could* unfold, and my flexibility is so limited by UF rules that could (again) change at a moment's notice, that it would be a waste of time even to *try* to specify what changes I'd make if this or that scenario were to unfold.

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**Graded components of course.** There will be two midterm exams, a cumulative final exam, and graded homework. Each of the midterms will count towards 20% of your course grade. The final exam will count towards 30% of your course grade, and the homework will count towards the remaining 30%. *I reserve the right to adjust the percentages above in individual cases (only to a student's benefit) if I feel that circumstances warrant*, but I will not answer any questions about hypothetical situations in which I might do this.

- **Exams.** There will be two midterm exams and a cumulative final exam. These will all be in-person exams.

On every exam: unless I say otherwise, you are responsible for knowing any material I cover in class, any subject covered in homework, and all the material in the textbook sections we have studied. You are also responsible for most of MAS 4105 and the Calculus 1-2-3 sequence (MAC 2311-12-13 or the equivalent). However, you should not base any proofs in this class on theorems that were stated but not proved in the lower-level calculus sequence (unless we have previously proved these theorems in MAA 4211).

- **Midterm exams.** I do not find one hour sufficient for a serious exam at the level of this course. My preference is that midterms be two-hour exams (with some run-over allowed), scheduled at a late-afternoon or evening time that everyone can make. But if no such time exists, the midterms will be 50- to 60-minute exams administered in class.

*My rough estimates* for the dates of the midterms are Monday, Sept. 27 and Monday, Nov. 1, at times TBA. *These dates are subject to change*; I selected them just by (approximately) trisecting the 43-lecture semester. The actual dates will depend on our rate of progress and on finding days/times that don't conflict with students' schedules (if possible). I will give you at least a week's notice before any exam.

- **Final exam.** This will be a two-hour exam given Wed. Dec. 15, starting at 3:00 p.m., in our usual classroom. The date and time are set by the Registrar's Office; faculty members aren't permitted to change these.

**By registering for this section of this course, you are agreeing to be available for a final exam on Wed., Dec. 15, from 3:00 p.m. to 5:00 p.m.** You are expected to arrange your post-semester travel plans accordingly, and are strongly advised to make those plans NOW. I will have little sympathy for students who state they are "unable" to take the final exam at its scheduled time, or that to do so would pose a hardship. If you voluntarily put yourself in this position, expect a zero for your final-exam grade.

- **Homework:** There will be approximately six homework assignments. I'll be assigning many more problems than are physically possible for me to grade, so for each assignment I will collect only a (proper) subset of the exercises. The hand-in exercises will be collected at intervals of (usually) one to two weeks. To help motivate you to do all the assigned problems, I will not announce which ones I am collecting until shortly before they are due. The due-dates will be announced individually for each assignment as we proceed, and will depend on our rate of progress. You should start on each homework problem within a day of its appearance on the [homework page](#). **It is impossible to overstate the importance of doing all the homework.** *It is also exceedingly important that you pay attention to, and learn from, my comments on the handed-in homework once I return it to you.*

For each assignment, I will require either that **all** students submit their work physically, at the beginning of class on the due-date, or that **all** students submit their work electronically no later than the start of class on the due-date. (Because of recent developments, I am reconsidering my original plan to require all work to be submitted physically.) **You will not be given a choice of which of these ways to submit your work** (modulo *properly documented* exceptions for illness, etc.). The [homework page](#) includes important [rules](#) regarding homework-submission.

When I start posting problems for an assignment, you'll often see wording like "Assignment X (not yet complete)"; I remove the "(not yet complete)" once all the problems are posted. I wait until we've covered certain material to post certain problems, so that you don't waste time trying to do problems you don't yet have the tools for.

- **Student Honor Code.** 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, which can be found [here](#), specifies a number of behaviors that are in violation of this code. As stated at the given link, *Cheating includes but is not limited to:*

- *Using any materials or resources prepared by another Student without the other Student's express Consent **or** without proper attribution to the other Student.*
- *Using **any** materials or resources, **through any medium**, which the Faculty has not given **express** permission to use and that may confer an academic benefit to the Student.*
- ...
- *Collaborating with another person, **through any medium**, on **any** academic activity, when Faculty has expressly prohibited collaboration.*

In addition, students are obligated to report to appropriate personnel any condition that facilitates academic misconduct.

**The "You cheat, you fail" rule: In my class, the penalty for cheating is a failing grade (E) for the course** (if you don't drop). **ONE STRIKE AND YOU'RE OUT;** I no longer give cheaters second chances. I will not tolerate students who take advantage either of me or their classmates.

Last year, seven of my Advanced Calculus students learned the hard way that when I said, *"In my class, the penalty for cheating is a failing grade for the course,"* **I meant it**, even if this affected graduation plans or the possibility of earning a B.S. degree.

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## Importance of following rules and instructions

The [homework page](#) has various important rules, including what's become a long list of rules about the format of submitted work. There has always been one simple principle behind all those rules: *Don't make your work unnecessarily hard for me to read or to comment on.* Said another way: *Have respect for my time, and use common sense.* Unfortunately, what I mean by the above has proven not to be obvious to students, leading to an ever-growing list of explicit "do"s and "don't"s.

Up through Fall 2020, at the beginning of the year I had a "grace period": on the first one or two handed-in homeworks, I only gave students *warnings*, not penalties, if they didn't follow my rules, and didn't really start enforcing these rules till the second or third handed-in homework. Last year, I made some other unfortunate discoveries:

1. In any class, a significant number of students will not take a rule seriously until they have been penalized for not observing it.
2. With an Advanced Calculus section as large as this, or in a semester starting with many uncertainties about how an evolving public-health threat might change class operations on a moment's notice, I cannot get my grading and class-prep done unless I enforce my submitted-work rules **RIGIDLY**.

Last year, my past practice of simply issuing warnings, rather than applying penalties, on the first handed-in assignment, led to my spending an inordinate amount of time grading work that was *unnecessarily* difficult to read. This led to a long delay in my handing back that assignment, which dominoed into delays in handing back the subsequent assignments. Students who'd followed my rules suffered because of the students who hadn't. I want to make sure that doesn't happen again.

So, with regrets, **this semester there will be no grace-period for not following my homework rules. Do not pick and choose which of my rules to follow. Non-observance of any of these rules will earn penalties that could lower your grade.** If you get a zero score (or some other penalty for rule-violation) on a homework assignment, and are surprised by it, then you either did not do your required reading (which includes this syllabus) or did not take it seriously, both of which indicate that **you do not belong in this class.**

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### My grading system for this course, this semester

1. After each homework or exam, I decide grade cutoffs for that item according to the philosophy "A = excellent, B = good, C = satisfactory, D = unsatisfactory but passing". In setting these cutoffs, *I do not have a predetermined grade curve or predetermined percentages for letter grades.*
2. At the end of the semester, I compute a numerical "raw score" for each student, on a 1000 point scale, using the weighting scheme [stated earlier](#): 20% (200 points) for each midterm, 30% (300 points) for the final exam, 30% (300 points) for the homework.

On the exams themselves, you'll see point-totals different from the ones above. These are rescaled appropriately in the raw-score computation. For example, if point-values for the problems on the first midterm add up to 138, your exam score will be multiplied by 200/138 in the above computation.

Similarly, the homework assignments will not all be the same length and will not all count equally; they will count proportionally to the number of points in each assignment. For example, if the point-values of the homework assignments add up to 249, then your homework-point total will be multiplied by 300/249 in the raw-score computation.

3. By applying the same weighting scheme to the cutoffs for exams and homework, I construct raw-score grade cutoffs for each of the grades A, B, C, D. The cutoffs I use for A- and B+ are the trisection points of the interval from the B cutoff to the A cutoff; the cutoffs for the B-, C+, C-, and D+ grades are computed analogously.

The grades that UF currently allows instructors to assign are A, A-, B+, B, B-, C+, C, C-, D+, D, D-, and E. (**For grade-point equivalencies of these grades, see [this catalog page](#).**) All of these are grades are possible in this class, except the D-.

In my philosophy (and that of my own college professors) of what a minus-grade means, a B-, for example, is *not* the lower end of the B range; it is *somewhat below* the bottom of the B range, and means that your work falls a little short of "good". (Said another way: another professor whose regards your work as "a little short of 'good' ", but who regards B- as meaning "the low end of the 'good' range", would *not* assign you a B- ; he/she would assign you a C+.) This philosophy is consistent with the degree-requirements for most majors at UF: courses count towards your major only if you get a "flat" C or higher, because a C- means that your performance was *less than* satisfactory—not that it was *barely* satisfactory—and therefore that you did not satisfactorily complete the course. This philosophy is also consistent with UF's [S-U grade option](#).

For similar reasons, I have never given the D- grade. "D" means "unsatisfactory but passing". My D cutoff

is the rock bottom of what I consider to be the "passing" range, so anything below that is a failing grade, which at UF is the E grade. (*Note: Because a C is usually needed for a course to count towards requirements for majors, minors, etc., an unfortunate number of faculty, advisors, and students have come to refer to every grade less than C as "failing". This is not the correct meaning of "failing grade", nor has it ever been; again see [this catalog page](#).*)

Since I don't determine the exam-grade cutoffs ahead of time, I can't tell you in advance exactly how many points you'll need to get a particular grade for the course. For examples of past grade-scales in my Advanced Calculus classes, navigate from my [past classes](#) page. However, **there is no guarantee that this semester's grade cutoffs will be close to those of the past classes.**

Last year I made considerable allowances (overcompensating, in fact) because learning was so difficult under last year's conditions. I will probably not make such large allowances again, but I recognize that most of this year's MAA4211 students will have taken one or more of the prerequisites in last year's environment, and that this semester's learning environment may be very stressful for many students. As this semester proceeds, I will assess what allowances, if any, to make. *I will not discuss what such hypothetical allowances might amount to.* If you are worried that such an allowance could be the difference between your getting a satisfactory grade or less-than-satisfactory grade in this course, then *MAA4211 is not a class you should be taking.*

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**Attendance policy.** As this semester starts, we are now in a phase of the COVID-19 pandemic in which, unlike in earlier phases, college-age persons are at significant risk of serious illness, and even death, from the virus. They are at even greater risk of contributing to the spread of a virus that is already putting a strain on the capacity of Florida's hospitals, including Shands-UF.

Public health experts believe that these risks will be minimal in classes in which all students are vaccinated and wearing masks. However, while UF is *recommending* vaccination and *expecting* mask-wearing in class, the university is not *requiring* either of these. As long as these conditions persist, I will not require attendance.

However, **the only way I will be delivering lectures is face-to-face, and during our official meeting time.** You will still be responsible for knowing 100% of my lecture-content, including announcements that might be made only in class, whether or not you were there. I will not be recording lectures, and I won't use a virtual office hour to re-deliver a lecture (or portions of a lecture). **If you elect not to attend a class, you will need to get good lecture notes from a classmate who *did* attend—not from me.** (The notes I lecture from are notes *from me to myself*; they are usually not suitable for student use. They can even have mistakes in them that I notice when I'm lecturing, and fix in my class presentation, but don't bother to fix in my notes.)

Students are allowed, to share their **written** class notes with each other; I would even *encourage* that this semester, During this period in which I am not requiring attendance, I have no objection to students forming groups in which they rotate who attends class and takes notes. However, **students are not permitted to share their own recordings of lectures with each other**, should they make any such recordings. (See [In-class recording by students](#) below.)

**What if you miss an exam?** As stated on [this UF webpage](#) (with emphasis added by me), "Should you experience circumstances that impact [sic] your ability to ... complete assignments, please complete use the following link to submit an [Instructor Notification Request](#). **Instructor Notifications are not an official excuse to miss class**, but they do provide communications to faculty on a student's behalf to *request* that the instructor work with the student to complete missed coursework/exams when appropriate."

If you miss an exam for a valid reason, and supply me with satisfactory documentation *promptly*, I will work out with you some way that is as fair as is feasible for you to make up the missing grade-component. Except in very large classes (which I don't teach) with cookie-cutter exams (which I don't

give), there is no such thing as a fair make-up exam. Thus, the way I have you make up the missing grade-component may or may not be via an exam. If you miss an exam for a reason that I do not consider valid (consistent with UF policy on which absences should be excused), or do not supply me with satisfactory documentation within two days, you should expect to receive a zero for that exam. If extenuating circumstances cause a reasonable delay in your providing me with satisfactory documentation, I may treat your exam-absence as valid and documented. (However, I will be the sole judge of what is "satisfactory", "extenuating", and "reasonable".)

If you are too ill to take an exam, please notify me by email before the exam starts (if possible).

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### **In-class recording by students**

Students are allowed to record video or audio of class **lectures**. However, **the purposes for which these recordings may be used are strictly controlled**. The only allowable purposes are (1) for **personal** educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. **All other purposes are prohibited**. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A class lecture does not include private conversations between students, or between a student and the instructor, that happen to take place during a class session. Recording of these conversations is prohibited.

**Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student.** Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. **A student who publishes a recording without written consent may be subject to a civil cause of action** instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

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**Accommodations for students with disabilities.** If you wish to request accommodation for a disability you must first register with the [Disability Resource Center](#). It is always important that you share your accommodation letter with your instructor, and discuss your accommodations, as early as possible in the semester.

**Teaching-evaluations.** 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 [gatorevals.aa.ufl.edu/students/](http://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 or via [ufl.bluera.com/ufl/](http://ufl.bluera.com/ufl/). Summaries of course-evaluation results are available to students at [gatorevals.aa.ufl.edu/public-results/](http://gatorevals.aa.ufl.edu/public-results/).

### **UF Health and Wellness Resources:**

- **U Matter, We Care initiative.** If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit [umatter.ufl.edu/](http://umatter.ufl.edu/) to refer or report a concern, and a team member will reach out to the distressed student.
- **Contact information for the Counseling and Wellness Center.** Visit [counseling.ufl.edu/](http://counseling.ufl.edu/) or call

352-392-1575 for information on crisis services as well as non-crisis services.

- **Student Health Care Center.** Call 352-392-1161 for 24/7 information to help you find the care you need, or visit [shcc.ufl.edu/](http://shcc.ufl.edu/).
- **University Police Department.** Visit [police.ufl.edu/](http://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room / Trauma Center.** For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [ufhealth.org/emergency-room-trauma-center](http://ufhealth.org/emergency-room-trauma-center).