Spring 2022 Math 702 Section 1001 Tuesdays/Thursdays 2:30-3:45pm, CBC C323

You are to read and be familiar with the information and policies below. (January 2022)

Professor: Dr. DuBose.
WebEx address: unlv.webex.com/meet/derrick.dubose
Email Address: derrick.dubose@unlv.edu
Office: CDC 924 Phone: 702-895-0382
Email is the best method to contact me, other than Webex during office hours.

Course Materials:

My Class Schedule:	
MAT 702 Section 1001 (Foundations of Mathematics IV)	2:30-3:45pm, Tues/Thurs CBC C323
Math 283 Section 1005 (Calculus 3)	5:30-6:45pm, Tues/Thurs, Remote
MAT 799.1004 (Dissertation)	TBA
MAT 791.1001 (Thesis)	TBA
Set Theory Seminar	4:15pm-5:45pm, Wednesdays

I attend the Friday discussion sections corresponding to Math 283.1005, to help with the quizzes, including any WebAssign issues, proctoring, etc.

Email Correspondences: Type "2022 spring MAT 702" on the subject line in all email correspondences to me. This will make it possible for me to sort and locate the emails concerning 2022 spring MAT 702. Feel free to <u>follow</u> "2022 fall MAT 702" by any additional information but do start the subject line as "2022 fall MAT 702" so that I may locate your email correspondence by sorting.

Office Hours: 7-8:30pm on Tuesdays and Thursdays, on Webex at

unlv.webex.com/meet/derrick.dubose

Several Math 283 students attend these since they are right after my Math 283 lectures. Since Math 283.1005 students often dominate those office hours and our class is not an evening class like Math 283.1005, I anticipate to also meet with MAT 702 students outside of office hours on Mondays and/or Wednesdays, as needed. The lectures and preparing/reviewing them dominate Tuesdays/Thursdays.

Any changes to and/or rescheduling of my office hours will be announced via Canvas, in which case I will also update the syllabus and post the updated syllabus in Canvas.

Face coverings and social distancing: UNLV has indicated that face coverings and/or face masks are mandatory for instructors and students in the classroom. UNLV has also indicated that "instructors and students who wish to wear face shields may do so, but face shields are not a substitute for masks. Individuals who wear face shields must also wear masks." In other words, face shields alone are not sufficient. I will also do what I can to socially distance (for everyone's safety).

Final: UNLV's online final exam schedule is located at

https://www.unlv.edu/registrar/calendars

When locating Tuesday/Thursday classes with starting time of 2:30pm on this website, you will find that the website lists our final for 3:10-5:10pm on Thursday of Finals Week. Therefore, according to this site, the spring 2022 MAT 702 is currently scheduled for 3:10-5:10 on Thursday, May 12, 2022. We should also watch MyUNLV for the official time/date for our final in case UNLV makes any change, which has

happened in the past. Note that the website indicates that the schedule posted is subject to change and to check (after the third week of the semester) MyUNLV for the actual time of final exams.

Curriculum and Pictures: The course is based on the lectures. Students are encouraged to take pictures of the lectures. I often check with the class concerning pictures before erasing problems and work on the board.

Grading Policy: Except for possibly lowering your overall final grade due to missing classes, talking during class, etc., 98% of your overall grade will be based on homeworks, quizzes, one test, and your final. With respect to the overall grade, the Final accounts for 20%, the test accounts for 13%, the homework accounts for 35%, and the quizzes account for 30%.

Duplicate exams (quizzes, the test, and the final), talking during exams, not having one's phone put up (see cell phones below), etc. will result in a score of 0% being recorded. Any questions concerning such scores should be handled outside of class, as the limited class time needs to be spent covering the course material. The remaining 2% of the overall grade is explained below under Attendance. No homework/quiz/test scores are dropped. Any changes in the above proportions will be announced in class.

Assuming no reduction in the final overall grade due to the items listed in the previous paragraph, your final grade will be based on your overall average as follows: A 92 and above, A- [90,92), B+ [88,90), B [82,88), B- [80,82), C+ [78,80), C [72,78), C- [70,72), D+ [68,70), D [62,68), D- [60,62), and F [0,60).

Test and Quizzes: The test and quizzes will be announced in class approximately one week in advance. Since we have plenty of available desks, students need to sit apart during the quizzes, the test, and the final. Duplicate tests, talking during exams (quizzes, the test, and the final), having your phone out during exams and/or not secured as described in the item "Cell Phones" below, etc. will result in a score of 0% being recorded.

At the end of an exam (quiz, test, or final), you are to take a picture of your exam so that you can later upload the picture(s) into Canvas and also so you have a copy of your work before it is returned.

Make sure to bring your Rebelcard to the final, the test, and quizzes. The Student ID (Rebelcard) is required for the test and the final, in order to receive a score. You may also be asked for your Student ID (Rebelcard) for some quizzes. The Rebelcard is the preferred student ID, as a driver's license includes information not relevant to the course and does not include your NSHE ID number (which is provided to us in MyUNLV under the class roster). However, in emergencies, a driver's license can be used.

If you are ill and therefore need to miss an in-class exam, please email me as soon as possible before the exam, indicating illness and/or the emergency keeping you from class. (Please email me at least 24 hours before the time of the exam. Earlier is better!) Any corresponding documentation for the course records that does not infringe on one's privacy is very helpful.

Attendance: Though students cannot attend class when ill due to the pandemic, attendance is very important, partly due to the course being based on the lectures.

2% of the overall grade has been reserved for attendance. Excluding any excused class with the corresponding documentation,

• students who miss or are not signed in for one or zero classes and are not disruptive for the attended classes will receive the full 2%,

- students who miss or are not signed in for two classes and are not disruptive for the attended classes receive 1.5% of the 2%,
- students who miss or are not signed in for three classes and are not disruptive for the attended classes receive 1% of the 2%,
- students who miss or are not signed in for four classes and are not disruptive for the attended classes receive 0.5% of the 2%, and
- students who miss or are not signed in for five classes will receive 0% of the 2%.

The final overall grade of students who miss more than five non-excused classes may be lowered due to lack of attendance. Students who cannot attend class due to being disruptive or are disruptive during class will lose attendance points (also see Class Courtesy below).

Even if you are running late, make sure to attend as much of the lecture as possible, without jeopardizing your safety while traveling to class.

Class Courtesy: Please use basic common courtesy in relating to your MAT 702 classmates and in the MAT 702 class. Class time will typically be focused on the lectures. Before and after class, students certainly can collaborate with one another with respect to the MAT 702 material (but of course not copying, not dividing work, not copying another persons' work, as these violate UNLV's Misconduct Policy).

Cell Phones: On lecture days, students will be using their phone to take pictures of the lectures. On quiz/test/final days, students will need to secure their phones in a backpack, Ziplock bag, or something similar, but definitely not a pocket as it is easy to glance at pictures of the course material on a phone that is not secured. Unsecured cell phones during an exam (quiz, test, or final) will result in the corresponding exam score being changed to 0%.

If there is an extraordinary issue (e.g. family hospitalization) that requires you to be on call during an exam (so that your phone ringer needs to be on while your phone is secured in your backpack, purse, etc.), please let me know (for instance, via email the day before the exam).

Homework: Since MAT 702 students are typically graduate students whose programs involve writing a dissertation or thesis, homework that is not quite right will often be returned for corrections, improvements, etc., even when the main part of a correct solution is submitted. To be fair to those who have submitted a correct solution by the due date, late work may be docked but with consideration of the earlier solutions turned in.

Due to grades needing to be turned in on time after Finals Week, during Finals Week I may not be able to accept homework or need to place limitations on what can be accepted. I will announce by study week, the situation concerning each homework set and Finals Week. Also, unless otherwise communicated at the end of the semester, any individual homework assignment turned in during Finals Week will be docked at most 10%, possibly less than 10% depending on the earlier solution(s) submitted, with the aim to be fair to those completed and submitted any requested change before Finals Week, while not having such a harsh penalty that discourages one from making any final changes.

Homework and Canvas: Homework is to be uploaded into Canvas, which will make it easier to later upload any later homework drafts with corrections. There are a number of guidelines for the homework that are described below.

Written homework and written parts of exams (quizzes, the test, and the final):

For these, follow the directions below to receive credit:

- a) Use 8.5 by 11 paper, with no ragged edges.
- b) Do not write on the back side of the papers. Work on the back will not be graded.
- c) For homework, list the homework number on each page. For the Test, list Test on each page. For the Final, list Final on each page. For Quiz 1, list Quiz 1 on each page, and similarly for the later quizzes.
- d) Put your name, Math 702, spring 2022, and instructor name (DuBose) on the each page.
- e) On each page, list page x of y, where x is page number and y is the total number of pages.
- f) Show all work, use proper mathematical notation, and provide logical steps leading up to and including the solution.
- g) Do not use a stapler and do not use a paperclip. Instead fold a blank sheet of paper around your pages of work before turning them in.
- h) Do not fold the papers which have your work on them. Instead fold a blank sheet of paper around your pages of work before turning them in.

Written parts of exams (quizzes, the test, the final) and written homework sets without such information will likely be returned so the missing information can be added. Work must be provided for written portion of the quizzes, test, final, and any written homework assignment.

Canvas: Homework and exams will regularly be required to be scanned and uploaded into Canvas, with a due date. Canvas will be set to upload your image as a PDF file. For these, follow the directions below to receive credit (there is purposely some duplication with the (a) through (f) above).

- (1) Make sure not to write lightly. There will need to be sufficient contrast between your writing to the paper, in order to grade your work from any printout of your uploaded solution. Make sure to write dark enough so that a printout of your written work can be easily read and graded, as your written work cannot be graded if it is too light.
- (2) If you take a picture of work to upload, make sure that the area surrounding your work and your paper is white, since I may be printing what you upload. Other surrounding colors uses too much department printer ink, in which case I will not be able to print and grade your work. When taking a picture of your work to be uploaded, consider putting blank white paper around and under the paper that has your work.
- (3) Make sure to use white paper, since I may print what you upload. Printing a scan of colored paper typically uses too much department printer ink, in which case I will not be able to print and grade your work. Also, written solutions on colored paper too often results in a bad contrast between your writing and paper on the printout, so that your work cannot be graded.
- (4) Make sure to have a margin of at least 0.5 inch on your paper from all four edges of paper (left, right, top, bottom). Otherwise, material near the edges might be cut off during printing and in turn not be graded.
- (5) Include near the top of each page (again, not in your margins), the following: MAT 702, spring 2022, the day of the week, the date, your name, and indicate page _____ of ____ (e.g. page 1 of 3, page 2 of 3, page 3 of 3) on each page, and one of the following: Quiz and quiz number, Homework and homework number, Test, or Final. Also, if a class number is assigned, near the top right but not in your margins, include your class number on each page being turned in.

- (6) Use 8.5 by 11-inch paper, as this matches the size being printed. Typically, the first 11 inches of "run on" uploads end up being printed and graded, so I recommend using 8.5 by 11-inch paper to avoid "run on" uploads.
- (7) Do not write on the back of pages, since you may forget to write the information listed above on it, as well as forget to count it as a separate page.
- (8) Make sure to write large enough that subscripts and superscripts clearly show up in the printout. Otherwise, they might come out as nothing more than a blur.
- (9) Make sure to end each sentence with a period. When I read your justifications (e.g., since A, we know B), I will need to know which sentence the justification is referencing. Periods ending sentences often clarify this.
- (10) Make sure to use correct/clear mathematical notation.

Book Keeping: Keep all old quizzes, homeworks, and the test so that you may calculate your grade. Though I can assist you in calculating your grade, it is your option for you to calculate your grade before the end of the semester.

Learning Outcomes:

- Students will be able to prove the Bernstein-Schroeder Theorem and use it to prove certain sets have the same cardinality.
- Students will be able to show each of the following have the cardinality as the set of all reals: any subset of the real line with nonempty interior, the power set of omega, and the set of all functions from omega into {0,1}.
- For any nonempty perfect subset P of the reals, students will be able to construct an injection into P from the set of all functions from omega into {0,1}, and be able to prove the injection constructed is in fact an injection.
- Students will be able to show that any subset of the real line that contains a nonempty perfect set has the same cardinality as the set of all reals.
- Students will be familiar with the cofinality of a limit ordinal and whether a nonzero ordinal is regular or singular.
- Students will be able to show that the cofinality of a limit ordinal is regular.
- For any uncountable regular cardinal kappa, students will be familiar with club (closed unbounded) subsets of kappa and stationary subsets of kappa.
- With respect to any uncountable regular cardinal kappa, students will be able to prove that the intersection of less than kappa many club subsets of kappa is also club.
- With respect to any uncountable regular cardinal kappa, students will be able to prove that the diagonal intersection of kappa many club subsets of kappa is also club.
- Students will be able to prove Fodor's Theorem, that for any stationary subset S of an uncountable regular cardinal kappa and any function f from S into kappa, f is constant on some stationary set T such that T is a subset of S.
- For any uncountable regular cardinal, students will be familiar with the club filter on kappa.
- Students will be familiar with measurable cardinals.
- Students will be able to prove that measurable cardinals are inaccessible.

Make sure to: Once you have completed reading the syllabus, email me at derrick.dubose@unlv.edu from your Rebelmail (which has suffix @unlv.nevada.edu). Then I will have your Rebelmail address on file. Please put "2022 spring MAT 702 syllabus" in the subject line and provide in the body of the email (a), (b), (c) and the corresponding information to each of these:

- a) List your name, the last three digits of your NSHE number, and the course spring 2022 MAT 702.
- b) Indicate whether you have read through the entire spring 2022 MAT 702 syllabus.
- c) Indicate whether you understand the information and policies in the MAT 702 class syllabus.

UNLV Drop Policy: Friday, April 1, 2022 is the final date to withdraw or drop the class or change from credit to audit (except for modular classes). As indicated online by UNLV, drops and withdrawals are not allowed after this date, even with instructor approval (see https://catalog.unlv.edu/content.php?catoid=32&navoid=8309).

Holidays:Martin Luther King Jr. Day Recess, Monday January 17, 2022.
President's Day Recess, Monday, February 21, 2022.
Spring Break Recess, Monday March 14 – Sunday March 20, 2022.

See <u>https://catalog.unlv.edu/content.php?catoid=32&navoid=8309</u> for the holiday information.

Study Week, May 2 - 7, 2022: Faculty are encouraged to refrain from giving one-hour, sit-down, written exams during Study Week, but the policy does not affect many activities including quizzes. UNLV provides the exact wording of the policy online at

http://catalog.unlv.edu/content.php?catoid=4&navoid=164.

It appears past the half-way point in the document, under the heading "Study Week."

Study Week: The UNLV Faculty Senate approved the following policy for Study Week: To ensure that students have the proper time to prepare for final examinations, the week before final exams shall be designated as a study week, in which classes will meet as scheduled but during which faculty members are encouraged to refrain from giving major tests (i.e. hour-long, sit-down, written exams). The policy shall not affect such assignments as laboratory finals, performance exams (as in juries, theatre, music, dance, etc.), short quizzes, term papers, final reports, and similar activities.

University Policies: The remaining items are directly from UNLV for faculty and instructors to also include in their spring 2022 UNLV syllabi. There is some duplication with earlier items in this syllabus.

Public Health Directives

Face coverings are currently mandatory for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at <u>Health Requirements for Returning to Campus</u>,

https://www.unlv.edu/coronavirus/health-requirements. Students who do not comply with these directives

may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the <u>UNLV Student Conduct Code</u>,

https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the <u>Student Conduct Code</u>, <u>https://www.unlv.edu/studentconduct/student-conduct</u>.

Auditing a Course

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of devices such as cellular phones and pagers, or other potentially disruptive activities are only permitted with the prior explicit consent of the instructor. Students are specifically prohibited to record classes without instructor authorization, including online/remote classes (either audio only, or video and audio). The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

Since the COVID-19 pandemic forced some instruction to be delivered remotely starting in Spring 2020, numerous students have asked instructors to record their synchronous classes, so that they can access them at their convenience. Instructors who agree to record their classes (audio only, or video and audio) should inform students in advance. Recorded lectures may not be broadly released to anyone, but made available exclusively to those students enrolled in the class during the particular academic term. Recorded lectures must be stored securely, and are subject to the Nevada System of Higher Education's Records Retention Policy, meaning that the recordings can only be deleted 120 days after the end of class (i.e., after grades are posted). Once this requirement is met, the recordings should be deleted. Class recordings are protected from disclosure, as they are deemed part of an educational record under the Family Educational Rights and Privacy Act (FERPA).

Copyright

The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for student or employee violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional <u>copyright</u> policy information is available at <u>https://www.unlv.edu/provost/copyright</u>.

Disability Resource Center (DRC)

The <u>UNLV Disability Resource Center</u> (Student Services Complex, SSC-A, Room 143, https://www.unlv.edu/drc, telephone 702-895-0866) provides resources for students with disabilities. Students

who believe that they may need academic accommodations due to a permanent disability, temporary or permanent medical need, or academic support due to pregnancy are encouraged to contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. Students who are already registered with the DRC should request their accommodations online each semester, and make an appointment to discuss their accommodations with their instructors.

Final Examinations

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the <u>Final Exam</u> <u>Schedule</u>, <u>https://www.unlv.edu/registrar/calendars</u>.

Identity Verification in Online Courses

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas. UNLV students enrolled in online or hybrid courses are expected to read and adhere to the <u>Student Academic Misconduct Policy</u>, https://www.unlv.edu/studentconduct/misconduct/policy, which states that "acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment" is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy. UNLV students enrolled in online courses are also expected to read and adhere to the <u>Acceptable Use of</u> <u>Computing and Information Technology Resources Policy</u>, https://www.it.unlv.edu/policies/acceptableuse-computing-and-information-technology-resources-policy, which prohibits sharing university accounts with other persons without authorization. To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLVmanaged platform that requires ACE login credentials for access.

Incomplete Grades

The grade of "I" (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student's control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of "F" will be recorded, and the student's GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the "I" grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the Libraries' Research Consultation website, https://guides.library.unlv.edu/appointments/librarian. You can also ask the library staff questions via chat and text message at https://ask.library.unlv.edu/.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays

or periods of class recess. For additional information, please visit the Missed Classwork policy, under Registration Policies, on the <u>Academic Policies</u> webpage, https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student submits official written notification to the instructor no less than one week prior to the missed class(es). The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a "Drop one" option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate's policy, and an infringement on the student's right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV's official email system for students and by University policy, instructors and staff should only send emails to students' Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Sending emails within WebCampus-Canvas is also acceptable.

Tutoring and Coaching

The Academic Success Center (ASC), at the Claude I. Howard Building, provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the <u>ASC website</u>, https://www.unlv.edu/asc, or call 702-895-3177. The ASC is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the <u>Writing Center</u>, https://writingcenter.unlv.edu/, located in the Central Desert Complex, Building 3, Room 301 (CDC 3–301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.