

GA2 – Extragalactic Astronomy - 2025

Convener: Dr. Moses Mogotsi primary email: moses@sao.ac.za ;
alternate: moses.mogotsi@uct.ac.za, Room 5.21;

Class Location: See Timetable

Class times: Tuesdays and Thursdays, see schedule for other terms

Tutors: Victor Moloi, MLXVIC002@myuct.ac.za

Aims: This course will build on what you learned as an undergraduate student and in your other honours' modules to give you a deeper physical understanding of the nature of galaxies, how they are observed, and what we know about how they form and evolve.

Text: There is no textbook for this course. Instead, we will distribute articles from the literature, lecture notes, or excerpts from books via Amathuba. The course will not fully follow traditional lectures. The first part of the course will be a combination of lectures and practical group work. If you are given readings, you will need to complete them before the class, these and the lectures will be your primary source of factual information. The second half of the course will have fewer lectures and the lecture sessions will focus on providing background information, answering questions about points of confusion, and doing group or individual work on problems.

Website: This syllabus plus all assignments, handouts, and recordings of the lectures will be available on the Amathuba page for the course.

Assessments: There are a few different ways we will do assessment in this class. The first kind of assessment will be in-class, group problem sets. These will be done in groups of two or three and involve working a few short problems related to the current topic. If the problem sets are too long, or if people have a hard time completing them during class, then you will be permitted to finish them before the following class. It will be your responsibility to ensure that I have received them before marking. The top 10 of these will count for 20% of your final grade.

Secondly, after completing a topic you will be given a brief reading quiz to assure that everyone has done the reading, understands the lectures, and to identify areas that need more explanation. After completing these, you can use your results as a guide to what you may want to re-read. These quizzes may be given orally as well. These will count for 10% of your grade.

The third assessment will revolve around an individual galaxy. Each student will adopt a galaxy that they will use for answering questions throughout the term as part of in-class and homework problems. A final, 5-minute presentation on this galaxy to occur in the last two weeks of classes will comprise 20% of your final grade.

The fourth assessment will involve a few individual homework assignments during the term, sometimes related to your adopted galaxy. These will comprise 20% of your final grade.

Finally, there will be a final exam worth 30% of your final grade sometime in Term 4.

All problems will be graded on a 5-point. See handout for the rough description of the grading rubric.

Attendance: As most of the class assessment is occurring during class period, regular attendance and participation in class is important. If you are too sick to attend class or are out of town, then you should keep up with the class readings, lectures, and posted assignments and submit these before the following class period.

Exams: There will be a final exam at the end of the year. It will be a mix of factual, conceptual, and mathematical questions that relate to work done throughout the term. You will be allowed to write and bring in your own formula sheet for this exam.

Grading: Your final grade will be calculated as follows:

Reading Quizzes	10%
Group work	20%
Homework	20%
Oral Presentation	20%
Final exam	30%

	100%

Preliminary Class Schedule:

First Term Classes: Tuesdays and Wednesdays

- Introduction to the class, review of astronomy fundamentals,
- Galaxy classification, the Milky Way
- Global Properties of galaxies, scaling relations
- Spiral & Elliptical Galaxies

Third and Fourth Term Classes: TBA

- The ISM, Spiral Galaxies and galaxy kinematics
- Active Galactic Nuclei
- Stellar collisions and Galaxy Interactions
- The Interstellar Medium and Star Formation Rates
- Observing Distant Galaxies, Galaxy Formation & Evolution

Final Exam: TBA