

ASTR325/425

The Structure and Evolution of Galaxies – 2026

Introduction

ASTR325/425 The Structure and Evolution of Galaxies is a 15-point course designed to give students an in-depth understanding of modern galactic astrophysics. A background in physics and mathematics including at least 30 points at 200 level is required. ASTR112 is recommended.

Students enrolled under the ASTR425 course code should expect more difficult assessments than will be required for 325 students.

Lecturers

Course coordinator
Associate Professor Michael Albrow
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Dr John Forbes
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Textbook

Sparke, L.S., & Gallagher J.S., *Galaxies in the Universe*, 2nd Edition

This should be available from the University Bookshop. There is one copy on “high demand” in the Library. Much of the course is based on this book and you are encouraged to acquire your own copy.

Recommended reading

Binney, J., Merrifield, M., *Galactic Astronomy*
Longair, M., *Galaxy Formation*, 2nd Edition

Timetable

Currently we have scheduled lectures on Mondays at 10 am in Beatrice Tinsley 112 and Tuesdays at 11 am in Jack Erskine 446. Our weekly tutorial, which may often involve computer activities, is in Jack Erskine 248 on Thursdays at 10 am. These times and venues are all subject to change, so please monitor your official UC timetable.

Assessment

<i>Assignments 20%.</i>	These will be given out in alternate weeks and will usually be due two weeks later.
<i>Mid-course test 15%</i>	Currently scheduled for 11 am Tuesday 18 August in the usual lecture venue.
<i>Talks 10%</i>	During the final week of term, each student will have to prepare and present a 10-minute talk. Details will be advised.
<i>Final examination 55%.</i>	Date and time to be determined by the Central Administration of the University at the end of the first week of the semester. Location will be advised by Registry just prior to the exam period. Duration 3 hours. The examination will cover all material from the course.

Marks and Grades: The following numbers should be considered as a guide to the expected grades under normal circumstances. The School reserves the right to adjust mark/grade conversions, if necessary.

Please note that for all invigilated assessments (tests and exams) worth 33% and above, failure to obtain a mark of at least 40% will result in a final grade no higher than an R at 100 and 200 level, and a C- at 300 level.

Grade:	A+	A	A-	B+	B	B-	C+	C	C-	D	E
Minimum mark %:	90	85	80	75	70	65	60	55	50	40	0

General Physics and Astronomy Information

Please consult the document General Information for Physics and Astronomy Students:
<https://apps.canterbury.ac.nz/1/science/phys-chem/PHYS%20-%20Course%20Outlines/General.PDF>

Topics to be covered in lectures include

Astrophysical Concepts, Structure Formation, Components of the Milky Way, Galactic Rotation, Stellar Populations of the Milky Way, Stellar Orbits, Bars and Arms, Disk Stability, Elliptical Galaxies, Rotational Support of Ellipticals, Galaxy Spectra, Galactic Chemical Evolution, Gravitational Lensing, Clusters and Groups, Active Galactic Nuclei, High-Z Quasars

Michael will give the lectures in Week 7 and 8

John will give the lectures in Weeks 1-6 and 9-12