

# ASTRO/PHYS 5580

## Extragalactic Astronomy & Cosmology



Course Website: <http://www.physics.utah.edu/~vdbosch/astro5580.html>

Instructor: Prof. Frank van den Bosch (Office: INSCC 460)  
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Teaching Assistant: Eric Twarok (Office: 205 Mines)

Grading: 40% Final Exam (verbal; 1 hour)  
20% Essay (topic picked in class)  
20% Homework  
20% Classroom Participation

Lecture Hours: Tuesdays & Thursdays: 9.10 - 10.30am in INSCC 465

Office Hours: Wednesdays & Fridays: 2.00 - 3.00pm in INSCC 460

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## Extragalactic Astronomy & Cosmology

Week	Date	Topic	Hand-Out	Homework
1	Tu 12/01	Observations & Stars	§2.1-2.2	Read Chapter 1
1	Th 14/01	Discussion of Chapter 1 IMF & Stellar Population Synthesis	§9.6 §10.3	Problem set 1
2	Tu 19/01	Observational Properties of Galaxies Statistical Properties	§2.3-2.4	
2	Th 21/01	Clusters & Groups, High-z Galaxies, Large Scale Structure	§2.5-2.7	
3	Tu 26/01	Cosmic Microwave Background The Homogenous & Isotropic Universe	§2.9-2.10	
3	Th 28/01	Cosmological Principle, FRW Metric	§3.1	
4	Tu 02/02	Relativistic Cosmology	§3.2	hand-in problem set 1
4	Th 04/02	Recombination & Decoupling	§3.5	Problem set 2
5	Tu 09/02	Linear Perturbation Growth, part I	§4.1	
5	Th 11/02	Linear Perturbation Growth, part II	§4.1	
6	Tu 16/02	Matter Power Spectrum, part I	§4.3-4.4	
6	Th 18/02	Matter Power Spectrum, part II	§4.3-4.4	
7	Tu 23/02	Inflation	§3.6 & 4.5	hand-in problem set 2
7	Th 25/02	Spherical Collapse	§5.1	Problem set 3
8	Tu 02/03	Collisionless Dynamics; Timescales	§5.4.1-5.4.2	
8	Th 04/03	Jeans Equations & Virial Theorem	§5.4.3-5.4.4	
9	Tu 09/03	Orbit Theory & Jeans Theorem	§5.4.5-5.4.6	
9	Th 11/03	Dynamical Models	§5.4.7-5.4.9	
10	Tu 16/03	Dynamical Relaxation	§4.1	
10	Th 18/03	Collisions, Mergers & Dynamical Friction	§12.1-12.4	hand-in problem set 3
11	Tu 23/03	Spring Break		
11	Th 25/03	Spring Break		

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Week	Date	Topic	Hand-Out	Homework
12	Tu 30/03	Press-Schechter Theory	§7.2	Problem set 4
12	Th 01/04	Large Scale Structure; Halo Bias	§7.3-7.4	
13	Tu 06/04	Internal Structure of Dark Matter Haloes	§7.5	
13	Th 08/04	Cooling, Star Formation & Feedback	§8.1,8.4,9.5	
14	Tu 13/04	Structure & Formation of Disk Galaxies	§11.1-11.2	
14	Th 15/04	Structure & Formation of Disk Galaxies	§11.3-11.8	hand-in problem set 4
15	Tu 20/04	Structure & Formation of Elliptical Galaxies	§13.1-13.2	
15	Th 22/04	Structure & Formation of Elliptical Galaxies	§13.3-13.5	
16	Tu 27/04	Outstanding Problems in Galaxy Formation	§7.2	Final date to hand-in essay

