



## COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/astr.html>

Ω Please note: the College electronically stores this outline for five (5) years only.  
It is **strongly recommended** you keep a copy of this outline with your academic records.  
You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

### 1. Instructor Information

(a)	Instructor:	Dr. James Nemec		
(b)	Office Hours:	M,W 2:00-2:30 pm, T,Th 1:30-2:30am		
(c)	Location:	Fisher 340c		
(d)	Phone:	370-3460	Alternative Phone:	
(e)	Email:	nemec@camosun.bc.ca		
(f)	Website:			

### 2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

1. Describe how the Sun works, its structure (interior, atmosphere, corona), its evolution and its future (as a red giant and then a white dwarf).
2. Outline the concepts of radiation (light) and energy, the different states of matter (solid, liquid, gas), and temperature scales.
3. Compare the properties of stars (single, binary and in clusters), including their distances, motions, temperatures (from spectra), masses, flux densities and luminosities.
4. Describe interstellar matter and the formation of stars from gas and dust.
5. Comment on the interiors and evolution of many different kinds of stars (such as red giants, planetary nebulae, novae, Cepheid and RR Lyrae variable stars, etc.) and why mass is the main factor controlling the evolution of stars.
6. Describe and explain the different kinds of stellar deaths and end-products, including supernovae, black holes, white dwarfs, and neutron stars.
7. Describe the Milky Way Galaxy, its contents, the massive black hole at its centre, and its evolution.
8. Describe the properties of the different kinds of galaxies, from ordinary elliptical and spiral galaxies to dwarf galaxies and quasars.
9. Outline ideas about the origin of the Universe and how it evolved to its present state (galaxy clusters, voids) as a result of physical laws, with reference to Hubble's Law, the Big Bang model, Einstein's special and general theory of relativity, the creation of elements, dark matter and dark energy.
10. Assemble simple experimental apparatus using written instructions.
11. Observe, record, organize and display data in tables, graphs or charts.
12. Analyze linear graphs (determine area, slope, intercept, etc.).
13. Interpret meaning of experimental results in the context of the experimental objectives.

### 3. Required Materials

- (a) The Cosmic Perspective, Bennett *et al.* 6<sup>th</sup> or later editions
- (b) calculator
- (c) Notebook (to be divided into two parts – Lecture Notes, Study Notes)

### 4. Course Content and Schedule

The first Midterm exam will be held in early October, the second Midterm exam in early November, and the 3-hour Final exam on a well-advertised date in the December exam period. There will be no early or make-up Final exams.

## 5. Basis of Student Assessment (Weighting)

- (a) Assignments and Labs – 30%
- (b) Quizzes – 10%
- (c) Exams – 2x15% midterms, 30% final exam
- (d) Other (e.g., Attendance, Project, Group Work)

## 6. Grading System

### Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

### Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at [camosun.ca](http://camosun.ca) for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. <i>(For these courses a final grade will be assigned to either the 3<sup>rd</sup> course attempt or at the point of course completion.)</i>
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

## 7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

### LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at [camosun.ca](http://camosun.ca).

### STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.