

REVISED COURSE OUTLINE CHECK LIST

DATE: 3/31/11

Please check all areas that are being changed in the attached proposed course outline.

ACADEMIC DEPARTMENT: MST

COURSE TITLE and NUMBER: Exploring Space– AST 123

PREPARED BY: Ralf Schauer/ Ruth McEvoy

COURSE CODES

COURSE TITLES

LECTURE HOURS/WEEK

LAB HOURS/WEEK

CREDIT HOURS

COURSE PREREQUISITES

COURSE CO-REQUISITES

COURSE DESCRIPTION

STUDENT LEARNING OUTCOMES

RELATIONSHIP TO SCCC'S GENERAL EDUCATION PRINCIPLES

INSTRUCTIONAL METHODS

REPRESENTATIVES TEXT/S

INSTRUCTIONAL TECHNOLOGY MATERIALS/REFERENCES

SUPPLEMENTARY MATERIALS/REFERENCES

EVALUATION METHODS

Department Approval:	_____	_____
	Date	Initial (Department Chair)
Curriculum Committee Approval:	_____	_____
	Date	Initial (Committee Chair)
Faculty Approval:	_____	_____
	Date	Initial (Faculty Secretary - when appropriate)

SCHENECTADY COUNTY COMMUNITY COLLEGE
Course Outline

ACADEMIC DEPARTMENT: Mathematics, Science, and Technology

PREPARED BY: Ralf Schauer/Ruth McEvoy

COURSE CODE: AST 123 **COURSE TITLE:** Exploring Space

LECTURE HOURS/WEEK: 3 **LAB HOURS/WEEK:** **CREDIT HOURS:** 3

COURSE PREREQUISITES: Two years of high school mathematics OR MAT 128

COURSE CO-REQUISITES: None

FINAL EXAM REQUIRED: YES X NO

COURSE DESCRIPTION: This course examines present and future methods of space exploration. Topics include the basic science, instruments, technology, dangers, benefits, costs, and practical and political importance of space exploration. Discussion topics include space stations, moon colonies, manned missions from Mercury through Apollo, and current international space missions.

STUDENT LEARNING OUTCOMES:

Students who have completed this course will:

- Analyze scientific data collected from manned and unmanned space missions;
- Identify the technological decisions and scientific changes resulting from the physical exploration of space;
- Define and use the vocabulary of space exploration;
- Outline the history of space exploration;
- Explain the factors affecting space-mission planning, and
- Identify and describe the basic principals of rocketry and space travel.

RELATIONSHIP TO SCCC'S GENERAL EDUCATION PRINCIPLES:

The purpose of general education is to help students develop a broad cultural and intellectual context for the substantive knowledge and career skills they acquire. To accomplish this purpose, Schenectady County Community College is committed to ensuring that graduates of

A.A., A.S. and A.A.S. degree programs will demonstrate the following abilities:

- **Apply logical and critical reasoning in evaluation and problem solving.** Students identify and evaluate the historical decisions made in past space exploration. They analyze and discuss the impact these decisions have on the current and future status of space exploration.
- **Interpret and apply quantitative data.** Students interpret and analyze quantitative data from space missions. Students predict the impact of this information on both its application to current life on earth and the need for future exploratory space missions.
- **Understand domestic and global interactions which shape the contemporary world.** Students evaluate and critique the impact of space exploration on the political relationships between the United States and international partners.

INSTRUCTIONAL METHODS:

These may include, but are not limited to, lecture, class discussions, demonstrations with models and globes, audio/visual aids (Internet sites/images).

REPRESENTATIVE TEXT/S:

Essential Cosmic Perspectives, Bennett, J., Pearson, (Current edition).

INSTRUCTIONAL TECHNOLOGY/EQUIPMENT /MEDIA:

Teacher's Station.

SUPPLEMENTARY MATERIALS/REFERENCES:

As supplied by the instructor.

EVALUATION METHODS:

Evaluation methods may include exams and written assignments. Other evaluation methods may include quizzes, worksheets, or homework.

SUNY KNOWLEDGE AND SKILL AREA ASSESSMENT PLAN:

The assessment plan consists of two parts.

Part I

- Analyze scientific data collected from manned and unmanned space missions. Each student in AST 123 will research NASA's annual operating budget over a three decade period, mathematically normalize the data, and develop a hypothesis about the correlation of the budget and significant historical events. Students will evaluate the evidence and state a conclusion. The faculty teaching the courses will agree upon definitive answers where applicable and create and use the same scoring criteria for the assignment of partial credit. At least two faculty members will read and evaluate the answers. A third reader will be utilized when the first two readers differ by 3 or more points. The results will reported to SUNY as follows:
 - 22-25 points – Exceeds Standards
 - 17-21 points – Meets Standards
 - 15-16 points – Approaches Standards
 - < 15 points – Does Not Meet Standards

Part II

Members of the faculty who teach the course will develop multiple choice and true-false questions to appear on unit tests directly after the appropriate topic is covered in lecture during the semester. The questions will be administered to all students enrolled in AST 123. The faculty members will use the same test questions and agree on the correct answers. There will be a total of 25 questions addressing equally each student learning outcome.

- Identify the technological decisions and scientific changes made resulting from the physical exploration of space;
- Define and use the vocabulary of space exploration;
- Outline the historical sequence of space exploration;
- Explain the context under which space missions are planned, and
- Identify and describe the basic principals of rocketry and space travel.

Each question will be worth 2 points, giving a total of 50 possible points. The tests will be scored anonymously. The point range will reported to SUNY as follows:

45-50 points - Exceeds Standards

35-44 points - Meets Standards

30-34 points - Approaches Standards

<30 points - Does Not Meet Standards

COURSE CONTENT OUTLINE:

COURSE: AST 123 – Exploring Space

Week	Topic
1	A brief overview of astronomy
2	Patterns and cycles of the sky
3	Telescopes, instruments and satellites: Extending the human senses
4	Basic laws of astronomy, and scientific method
5	Basic principles of rocketry and orbital mechanics
6	Dreamers and pioneers of space flights
7	The early years – pre-space age
8	Dawn of the space age
9	“The Right Stuff”
10	“A nation which can place a man on the Moon can.....”
11	Golden age of planetary exploration (1960-70s)
12	Second wave of planetary missions (1990-2010)
13	Current and future planetary missions
14	Return to space (The Shuttle years 1981-2010)
15	Living in space
16	Final Exam