BACHELOR OF SCIENCE DEGREE IN APPLIED PHYSICS

This constitutes the program of study for _____ ID# _____

It has been agreed to by the student and an appropriate faculty advisory committee. Any changes must be approved in writing by all members of the committee. The minimum physics and mathematics requirements for all B.S. degrees in Applied Physics programs are given below. The additional courses selected for this particular student's program are indicated on the next page. The Core Curriculum Check Sheet is to be used for Core Curriculum Requirements. The student will be given one copy of this agreement. A copy will be kept in the department files and will serve as the official copy. One semester prior to anticipated graduation, students should check with the Office of the Dean of Arts and Sciences to ensure that all graduation requirements will be satisfied.

Semester Hour Requirements for this Student's Program

Physics _____ Semester Hours (Minimum is 32)
Mathematics _____ Semester Hours (Minimum is 12)
Concentration_____ Semester Hours (Minimum is 18)

Required Physics

	Semester	Grades
PHY 1103 (4 hours) and 1104 (4 hours) _____	_____	____
OR		
PHY 1150 (5 hours) and 1151 (5 hours) _____	_____	____ ____

		AND	Semester	Grade
PHY 2010	Intermediate Physics I	(4 hours)	_____	_____
PHY 2020	Intermediate Physics II	(4 hours)	_____	_____
PHY 2210	Physics Lab Techniques (S)	(3 hours)	_____	_____
PHY 3210	Modern Physics (F)	(3 hours)	_____	_____
PHY 4210	Methods Experimental Phy	(3 hours)	_____	_____

Required Mathematics

MAT 1110	Calculus I	(4 hours)	_____	_____
MAT 1120	Calculus II	(4 hours)		
MAT 2130	Calculus III	(4 hours)		

Approval of Program of Study

Student _____ Date _____

Committee Chair _____ Date _____

Committee Member _____ Date _____

Committee Member_____ Date _____

Department Chair _____ Date _____

APPLIED PHYSICS - ASTROPHYSICS CONCENTRATION

This constitutes the program of study for _____ ID# _____

The courses listed below fall into two categories. Those which are very strongly recommended are given in capital letters. The remaining courses are recommended to broaden the student's background and understanding of physics in general and the student's chosen concentration in particular.

PHYSICS

			X Indicates Required (X grad sch)	Semester Spring 201x	Grade
PHY 3001	ANALYTICAL METHODS (S)	3			
PHY 3010	CLASSICAL MECHANICS (F)	3			
PHY 3020	EM FIELDS AND WAVES (S)	3			
PHY 3140	Environmental Physics (F)	3			
PHY 3211	MODERN PHYSICS II (S)	3			
PHY 3230	Thermal Physics (S)	3			
PHY 3500	Independent Study	1-4			
PHY 3520	Instructional Assistance	1			
PHY 3549	Math Methods in Physics	3			
PHY 3560	Undergraduate Research	2,4			
PHY 4020	COMPUTATIONAL METHODS (F)	3			
PHY 4330	Digital Electronics (F)	3			
PHY 4730	Analog Systems (F)	3			
PHY 4620	OPTICS (F)	4			
PHY 4640	QUANTUM MECHANICS (S)	3			
PHY 4735	Microcontrollers (S)	3			

ASTRONOMY

AST 1001	INTRODUCTORY ASTRONOMY I	4	X		
AST 1002	INTRODUCTORY ASTRONOMY II	4	X		
AST 2001	OBSERVATIONAL ASTRONOMY I	3	X		
AST 3001	TECH ASTRO PHOTOMETRY	3			
AST 3002	TECH ASTRO SPECTROSCOPY	3			
AST 3100	ASTROPHYSICS	3			
AST 3200	Astromechanics	3			
AST 3560	Undergraduate Research	1-3			
AST 35xx	Binary and Variable Stars	2			
AST 35xx	Planets and Exoplanets	3			
AST 35xx	Astrobiology	3			
AST 35xx	Star Formation	3			

MATHEMATICS

MAT 3130	DIFFERENTIAL EQUATIONS	3	X		
MAT 2240	INTRODUCTION TO LINEAR ALGEBRA	3			
MAT 4310	Introduction to Numerical Methods	3			

APPLIED PHYSICS - ASTROPHYSICS CONCENTRATION

Sample Course Schedule - **Even Year** Fall Start

The following is a ***sample*** schedule of courses for the astrophysics concentration applied physics major with the intent to go on to graduate school. It assumes that the student's background is such that they can start the math sequence with calculus.

First Year - Fall (E)	*AST 1001*	*Solar System Astronomy*	*4 hours*
	PHY 1150	**Analytical Physics I**	**5 hours**
	MAT 1110	**Calculus I**	**4 hours**
First Year - Spring (O)	*AST 1002*	*Stellar Astronomy*	*4 hours*
	PHY 1151	**Analytical Physics II**	**5 hours**
	MAT 1120	**Calculus II**	**4 hours**
Second Year - Fall (O)	**PHY 2010**	**Intermediate Physics I**	**4 hours**
	PHY 3210	**Modern Physics**	**3 hours**
	MAT 2130	**Calculus III**	**4 hours**
	AST 2001	*Observational Astronomy I*	*3 hours*
Second Year - Spring (E)	**PHY 2020**	**Intermediate Physics II**	**4 hours**
	MAT 3130	*Differential Equations*	*3 hours*
	AST 3001	*Photometry Techniques*	*3 hours*
	PHY 3001	**Analytical Methods**	**3 hours**
Third Year - Fall (E)	PHY 3010	Classical Mechanics	3 hours
	PHY 4020	Computational Methods	3 hours
Third Year - Spring (O)	**PHY 2210**	**Intermediate Physics Lab**	**3 hours**
	PHY 3020	EM Fields and Waves	3 hours
	AST 3002	*Spectroscopy Techniques*	*3 hours*
Fourth Year - Fall (O)	**PHY 4210**	**Methods Experimental Physics**	**3 hours**
	PHY 4620	Optics	4 hours
Fourth Year - Spring (E)	PHY 4640	Quantum Mechanics	3 hours
	AST 3100	*Astrophysics*	*3 hours*

The above schedule includes all the physics and math courses required for any applied physics major (**bold**) as well as courses for the astrophysics concentration (*italics*). Depending on the student's own level of preparation, it may be necessary to take additional preparatory courses in math or physics. **It is important that the student begins the sequence of astronomy courses as soon as possible. Note that AST 3001, AST 3002 and AST 3100 are <u>offered every other year</u>.** Additional astronomy, math, physics and computer sciences courses will improve the student's preparation for post-graduate studies. If the student intends to go into immediate employment then many of the upper level physics courses can be replaced by, among others, Digital Electronics, Analog Systems, Microcontrollers and Environmental Physics.

APPLIED PHYSICS - ASTROPHYSICS CONCENTRATION

Sample Course Schedule - **Odd Year** Fall Start

The following is a ***sample*** schedule of courses for the astrophysics concentration physics major. It assumes that the student's background is such that they can start the math sequence with calculus.

First Year - Fall (O)	AST 1001	*Solar System Astronomy*	*4 hours*
	PHY 1150	**Analytical Physics I**	**5 hours**
	MAT 1110	**Calculus I**	**4 hours**
First Year - Spring (E)	AST 1002	*Stellar Astronomy*	*4 hours*
	PHY 1151	**Analytical Physics II**	**5 hours**
	MAT 1120	**Calculus II**	**4 hours**
Second Year - Fall (E)	**PHY 2010**	**Intermediate Physics I**	**4 hours**
	PHY 3210	**Modern Physics**	**3 hours**
	MAT 2130	**Calculus III**	**4 hours**
	AST 2001	*Observational Astronomy I*	*3 hours*
Second Year - Spring (O)	**PHY 2020**	**Intermediate Physics II**	**4 hours**
	MAT 3130	*Differential Equations*	*3 hours*
	AST 3002	*Spectroscopy Techniques*	*3 hours*
	PHY 3001	**Analytical Methods**	**3 hours**
Third Year - Fall (O)	PHY 3010	Classical Mechanics	3 hours
	PHY 4020	Computational Methods	3 hours
Third Year - Spring (E)	**PHY 2210**	**Intermediate Physics Lab**	**3 hours**
	PHY 3020	EM Fields and Waves	3 hours
	AST 3001	*Photometry Techniques*	*3 hours*
	AST 3100	*Astrophysics*	*3 hours*
Fourth Year - Fall (E)	PHY 4210	Methods Experimental Physics	3 hours
	PHY 4620	Optics	4 hours
Fourth Year - Spring (O)	PHY 4640	Quantum Mechanics	3 hours

The above schedule includes all the physics and math courses required for any applied physics major (**bold**) as well as courses for the astrophysics concentration (*italics*). Depending on the student's own level of preparation, it may be necessary to take additional preparatory courses in math or physics. **It is important that the student begins the sequence of astronomy courses as soon as possible. Note that AST 3001, AST 3002 and AST 3100 are <u>offered every other year</u>.** Additional astronomy, math, physics and computer sciences courses will improve the student's preparation for post-graduate studies. If the student intends to go into immediate employment then many of the upper level physics courses can be replaced by, among others, Digital Electronics, Analog Systems, Microcontrollers and Environmental Physics.