

**MATHEMATICS - APPLIED TRACK (B.S.)**

College of Sciences

Department of Mathematics, MAP 207, 407-823-6284

<http://math.ucf.edu>E-mail: [math@mail.ucf.edu](mailto:math@mail.ucf.edu)

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The Department of Mathematics offers courses identified by a suffix of H for students in the Honors Program; e.g., MAC 2311H, MAC 2312H, MAC 2313H, and MAP 2302H.

**Admission Requirements** none**Degree Requirements**

- Students who change degree programs and select this major must adopt the most current catalog.
- All mathematics courses except MAC 2311, MAC 2312, MAC 2313, and MAP 2302 must either be taken from, or approved by the Department of Mathematics at UCF
- Departmental Residency Requirement: at least 24 semester hours of regularly scheduled 3000-4000 level courses must be taken from the UCF Math Department
- Co-op or internship credit cannot be used in this major
- Students must earn at least a "C" (2.0) in each required course
- Students should consult with a departmental advisor
- Courses designated in 1 (General Education Program) and 2 (Common Program Prerequisites) are usually completed in the first 60 hours

**1. UCF General Education Program (36+2 hrs)**

(Note: Certain courses must be selected for this major, bringing GEP hours above 36)

A. Communication Foundations	9 hrs
B. Cultural and Historical Foundations	9 hrs
C. Mathematical Foundations	
1. Select MAC 2311	4 hrs
2. Select COP 3502C	3 hrs
D. Social Foundations	6 hrs
E. Science Foundations	
1. Select PHY 2048 & L	4 hrs
2. Select a listed course	3 hrs

**2. Common Program Prerequisites (15 hrs)**

COP 3223*	Intro to Programming with C	3 hrs
MAC 2311	Calculus with Analytic Geo I	GEP
MAC 2312	Calculus with Analytic Geo II	4 hrs
MAC 2313	Calculus with Analytic Geo III	4 hrs
PHY 2048*&L	Physics for Sci & Eng I w/lab	GEP
PHY 2049*&L	Physics for Sci & Eng II w/lab	4 hrs

\*See Transfer Notes for possible substitutes

See "Common Prerequisites" in the Transfer and Transitions Services section (pg. 46) for more information.

**3. Core requirements (48 hrs)**

PHY 2048&L	Physics for Sci & Eng I w/lab	GEP
PHY 2049&L	Physics for Sci & Eng II w/lab	CPP
One course selected from		3 hrs
ENC 3241	Writing for Tech Professional	
ENC 3310	Magazine Writing I	
ENC 3311	Advanced Expository Writing	
STA 2023	Statistical Methods I	3 hrs
MHF 3302	Logic and Proof in Mathematics	3 hrs
MAP 2302	Differential Equations	3 hrs
MAS 3105	Matrix & Linear Algebra	4 hrs
MAS 3106	Linear Algebra	4 hrs
Select one course		3-4 hrs
MAD 4203	Applied Combinatorics	
MAP 4153	Vector and Tensor Analysis	
MAP 4307	Appl of Complex Variables	3 hrs
MAP 4363	Appl Boundary Value Prob I	3 hrs
STA 4321	Statistical Theory I	3 hrs
MAP 4364	Appl Boundary Value Prob II	3 hrs
COP 3502C	Computer Science I	GEP
STA 4322	Statistical Theory II	3 hrs
MAA 4226	Advanced Calculus I	4 hrs
COT 4500	Numerical Calculus	3 hrs
MAP 4103	Mathematical Modeling I	3 hrs

**4. Restricted Electives (6 hrs)**

- a. Applied Elective 3 hrs
- Select from COT 4210, COT 4400, COT 5507, COT 5510, EGN 3310, EGN 3321, EGN 3343, EGN 3373, STA 4102, STA 5103, STA 4641
- b. Biological or physical sciences Elective 3 hrs
- Note: Students must satisfy course prerequisites before enrolling
- Select from PCB 3044, PCB 3063, PCB 4302C, PCB 4303C, CHM 3410, CHM 2210, PHY 3101, PHY 3323, PHY 4324, PHY 4424, PHY 4604

**5. Departmental Exit Requirements**

- Earn a grade of "C" (2.0) or better in each course required in the degree program (sections 2-4 above)
- Participate in an exit interview.
- Computer Competency met by COP 2200
- Before applying to graduate, the CLAST must be completely satisfied.

**6. Foreign Language Requirements**

**Admission:** Two years of one foreign language in high school, or one year of one foreign language in college (or equivalent proficiency exam) prior to graduation.

**Graduation:** none**7. Electives (variable)**

Select primarily from upper level courses, with departmental advisor's approval. May be outside of the department.

**8. University Minimum Exit Requirements**

- A 2.0 UCF GPA
- 60 semester hours earned after CLEP awarded
- 48 semester hours of upper division credit completed
- 30 of the last 36 hours of course work must be completed in residency at UCF
- A maximum of 45 hours of extension, correspondence, CLEP, Credit by Exam, and Armed Forces credits permitted
- Complete the General Education Program, the Gordon Rule, the CLAST and nine hours of Summer credit (if applicable).

**Total Semester Hours Required 120 hrs****Related Programs:** Applied Math, Computer Science, Engineering, Math Education, Statistics**Related Minors:** Applied Computer Science, Computer Science, Engineering, Math, Physics, Statistics**Transfer Notes:**

- Lower division courses taken at community colleges do not substitute for Upper Division courses.
- Courses transferred from private and out-of-state schools must be evaluated for equivalency credit. The student must provide all supporting information.

**Acceptable Substitutes** for common program prerequisites if taken prior to transferring to UCF:

- COP 3223\* may use any programming language course with a COP prefix
- PHY 2048\* & PHY 2049 with labs: may use any PHY, CHM or BSC course with a lab designed for science majors; however, PHY 2048 & PHY 2049 with labs are core requirements and still must be taken.

**Program Academic Learning Compacts**

- Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at: [http://www.oegas.ucf.edu/alc/academic\\_learning\\_compacts.htm](http://www.oegas.ucf.edu/alc/academic_learning_compacts.htm)

**Suggested Plan of Study:**

One of numerous possible plans of study. See program description for all requirements. Courses with an asterisk (\*) may be replaced by alternates in the same requirement. Consult a departmental advisor for alternate, new or more appropriate selections.

Summer

Take Math Placement Test ~ <http://mathplacement.sdes.ucf.edu/>

# UCF Degree Programs

## Freshman Year

<b>Fall</b>	<b>Spring</b>	
ANT 2000* req# 1D2-GEP	3 BSC 1005* req#1E2 GEP	3
ENC 1101 Composition I	3 ENC 1102 Composition II	3
MAC 2311 Calc Anal Geo I	4 MAC 2312 Calc Anal Geo II	4
STA 2023 Stat Methods I	3 MHF 3302 Logic and in Math	3

## Sophomore Year

<b>Fall</b>	<b>Spring</b>	
COM 1000* req# 1A3-GEP	3 POS 2041* req# 1D1-GEP	3
PHY 2048 Phy for Eng Sci I	3 MAP 2302 Dif Equations	3
PHY 2048L Phy L Eng Sci I	1 MAS 3106 Linear Algebra	4
MAC 2313 Calc Anal Geo III	4 PHY 2049 Phy for Eng Sci II	3
MAS 3105 Matrix and Lin Alg	4 PHY 2049L Phy L Eng Sci II	1

## Junior Year

<b>Fall</b>	<b>Spring</b>	
AMH 2010* req# 1B1-GEP	3 COP 3502C Computer Science I	3
COP 3223 Intro to Prog C	3 MUL 2010* req# 1B2-GEP	3
MAD 4203* req# 3-Core	4 MAP 4307 App complex var	3
MAP 4363 Ap Bound Prob I	3 MAP 4364 Ap Bound Prob II	3
Elective* Check restrictions	4 Elective* Check restrictions	4

## Senior Year

<b>Fall</b>	<b>Spring</b>	
ARH 2050* req# 1B3-GEP	3 ENC 3241* req# 3-Core	3
COT 4500 Numerical Calculus	3 MAP 4103 Math Modeling I	3
MAA 4226 Adv Calculus I	4 STA 4322 Stat Theory II	3
STA 4321 Stat Theory I	3 PCB 3063* req# 4b-ResElec	3
COT 4210* req# 4a-ResElec	3 Elective* Check restrictions	4

## MATHEMATICS - COMPUTATIONAL TRACK (B.S.)

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- Students must earn at least a "C" (2.0) in each required course.
- Co-op or internship credit cannot be used in this major.
- Students should consult with a departmental advisor.
- Courses designated in sections 1 (General Education Program) and 2 (Common Program Prerequisites) are usually completed in the first 60 hours.

### 1. UCF General Education Program (36 + 2 hrs)

(Note: Certain courses must be selected for this major, bringing GEP hours above 36)

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PHY 2049*&L	Physics for Sci & Eng II w/lab	4 hrs

\*See Transfer Notes for possible substitutes

See "Common Prerequisites" in the Transfer and Transitions Services section (pg. 46) for more information.

### 3. Basic Core Requirements (6 hrs)

COP 3502C	Computer Science I	GEP
PHY 2048&L	Physics for Sci & Eng I w/lab	GEP
PHY 2049&L	Physics for Sci & Eng II w/lab	CPP
STA 2023	Statistical Methods I	3 hrs
MAP 2302	Differential Equations	3 hrs

### 4. Advanced Core Requirements (42 hrs)

Select one course		
MHF 3302	Logic and Proof in Mathematics	
COT 3100C	Intro to Discrete Structures	
ENC 3241	Writing for the Tech Professional	3 hrs
MAS 3106	Linear Algebra	4 hrs
MAD 4203	Applied Combinatorics	3 hrs
MAP 4307	Appl of Complex Variables	3 hrs
MAP 4363	Appl Boundary Value Prob I	3 hrs
STA 4321	Statistical Theory I	3 hrs
MAP 4364	Appl Boundary Value Prob II	3 hrs
COP 3503C	Computer Science II	4 hrs
STA 4322	Statistical Theory II	3 hrs
MAA 4226	Advanced Calculus I	4 hrs
COT 4500	Numerical Calculus	3 hrs
Select one course		
MAP 4103	Mathematical Modeling I	3 hrs
MAP 4153	Vector and Tensor Analysis	

### 5. Restricted Electives (18 hrs)

Select six upper division courses		
COP 3402	Systems Software	3 hrs
COP 3530C	Computer Science III	3 hrs
CDA 4150C	Computer Architecture	3 hrs
COP 4020	Programming Languages I	3 hrs
COP 4600	Operating Systems	3 hrs
COT 4210	Discrete Computational Structures	3 hrs
or any MAA, MAD, MAP, MAS, or MTG upper division courses		

### 6. Departmental Exit Requirements

- Earn a grade of "C" (2.0) or better in each course required in the degree program (sections 2-5 above).
- Participate in an exit interview.
- Computer Competency met by COP 3502C.
- Before applying to graduate, the CLAST must be completely satisfied.

### 7. Foreign Language Requirements

**Admission:** Two years high school, or one year college language (or equivalent proficiency exam) prior to graduation.

**Graduation:** none

### 8. Electives (variable)

Students desiring to complete a double major in both Computer Science and Applied Mathematics must also complete all the requirements of the School of Computer Science. To minimize the total hours taken for both majors, students should select an advanced computer science course for the unrestricted elective.

### 9. University Minimum Exit Requirements

- A 2.0 UCF GPA
- 60 semester hours earned after CLEP awarded
- 48 semester hours of upper division credit completed
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**Total Semester Hours Required** 120 hrs

**Related Programs:** Applied Mathematics, Computer Science, Engineering, Math Education, Statistics

**Related Minors:** Applied Computer Science, Computer Science, Engineering, Math, Physics, Statistics

### Transfer Notes:

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