

3-31-2015

## Minutes, Arts & Sciences Academic Affairs Committee Meeting, Tuesday, March 31, 2015

Arts & Sciences Academic Affairs Committee

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## **Academic Affairs Committee Meeting Minutes**

March 31, 2015

*Attending:* Jennifer Cavanaugh, Holly Pohlig, Jonathan Walz, Robin Matteo, Laura Pfister, Vidhu Aggarwal, Jill Jones, Robin Mateo, Emmanuel Kodzi, Kathryn Sutherland, Lexi Tomkunas, Julie Carrington

I        Approve the Minutes from March 17,  
          Motion: (Unanimous approval)

II       Sub-Committee Announcements or reports:  
          Jonathan Walz New Course Sub-Committee:

Concerns about rapid window to approve Maymester courses: lack of appropriate signatures on forms

Faculty may not have been informed that they can teach rFLA courses in Maymester

Concerns with gen eds and rFLA approvals for Maymester

Jenny Cavanaugh: Too many ways for faculty to submit Maymester courses

JW: More lead time for approval of Maymester Courses.

III      Old Business:  
          (none)

IV.     New Business:

1. Jennifer Cavanaugh: Proposed independent self-designed minor in Chinese. We currently don't have a process for self-designed minors, only majors. Student has approvals from various bodies for a self-designed minors.

Motion to approve the student's self-designed minor: Cavanaugh; unanimous pass

2. Proposed revisions to the Biology Major, Attachment (Katie Sutherland)

KS: Small change to the major. Remove physics 120 from bio major as requirement, instead have others potential options depending on their concentration in the bio major. More flexibility for pre-health students.

Motion to pass the changes in the Biology major. unanimous pass

3. Proposed revision to the Computer Science major and minor (Julie Carrington)

JC: Biggest change is to take out calculus from CS major. Calculus has diminished in importance for majors. Allows for alignment programs in Holt and Day.

2<sup>nd</sup> Change. Combine the 2 courses required in Holt and the 2 courses required in A&S as electives in the major. Increases the number of electives to 4 instead of 2. Aligns the two programs.

Emmanuel Kodzi: In terms of the removal of calculus from major, should industry drive concerns about changes in a liberal arts major? P

Carrington. Students who go to graduate school should get a math minor. Two math courses are still required within CS major, courses which are much more applicable. Academy and industry guidelines support the discontinuation of calculus as a requirement, not just industry.

Motion to pass the changes in the Computer Science major/minor.  
unanimous pass

## V. Announcements

Kodzi: Not sure if CPS members will still be in AAC Put in request to discuss all Campus committee (Jill Jones)

## VI. Adjourn

Motion to adjourn: unanimous

## SUPPORT LETTER FOR DYLAN BASSHAM'S APPLICATION FOR SELF-DESIGNED CHINESE MINOR

Li Wei

Coordinator for Chinese Studies, Dept. of Modern Languages & Cultures

February 27, 2015

I have known Dylan since he was a freshman when he took my Elementary Chinese I. He has since completed CHN 102, 201, and now is taking 202 this semester. He plans to continue his Chinese study next semester and beyond. Like some "heritage" Chinese students, Dylan had some prior knowledge of Chinese when he came to Rollins, but limited to some very basic level of verbal communication. His writing and reading skills were nonexistent at the time he took the CHN 101. Now he is in the second year of the college and is among the top performers in CHN 202.

As an International Business major and Asian Studies minor, Dylan understands the importance of cultural competence and language skills in his future career. Already through his extracurricular activities (Lacrosse), he has made connections to his mom's home country (e.g., represented China for 2014 World Lacrosse Championship, wrote blogs for the tournament). This summer he will travel to China for a summer internship. All these will undoubtedly help him connect his cultural roots and sharpen his language skills.

So I understand that reinforcement of his cultural affinity is part of the reasons Dylan wants to do this minor. But more importantly, I think it is the linguistic part that Dylan mostly wants to excel. For the next two years, he wants to move up to 400 level of Chinese instruction. I think it's achievable. Currently we regularly offer 300 level Chinese but not 400 level classes. With his proposed plan, he will take 301 next semester (Fall 2015) and 302 in the following semester (Spring 2016). In his senior year, he should be able to take two 400 level Chinese. One of them is an independent study that will incorporate Business Chinese into the instruction. Currently I'm experimenting fusing Business Chinese content into 400-level Chinese instruction (Yuan Fangyuan: *Business Chinese for Success*, Peking University Press, 2013). Given his majoring in INB and minoring in Asian Studies, this independent study will help him cumulate practical knowledge of the language. The projected linguistic goal for his minor is to reach Mid or High Advanced level of ACTFL scale, focusing on the sub-categories of "Global Tasks & Functions" and "Sociolinguistic Culture."

Dylan is an energetic and intelligent young man who is highly motivated and self disciplined. With a carefully planned language focused curriculum (three advanced level of language courses beyond 301), I believe he can achieve his goals with Chinese minor that will underlie higher linguistic skills and transcultural competence. I thus strongly support his proposal.



## SELF-DESIGNED MAJOR GUIDELINES AND PROCEDURES

Self-Designed Majors are intended for disciplined and highly motivated students who are clearly focused in their interests. These majors reflect the College's recognition that not every student's area of special interest will always fall neatly within the bounds of a single discipline as traditionally defined.

The Self-Designed Major is not intended as a way for a student to avoid the intellectual focus and methodological rigor required in the normal departmental major or to avoid certain difficult courses within majors. It should not be used to concentrate work in a narrowly pre-professional way. On the contrary, by successfully completing the courses and integrative research project that constitute the Self-Designed Major, the student is expected to achieve a depth of focused reflection and understanding at least comparable to that of a traditional major.

### I. General Guidelines for Proposals:

- A. The Self-Designed Major must be a coherent, interdisciplinary approach to an academic topic or area, rather than an accumulation of courses. A brief descriptive title should specify that topic or area.
- B. The goal of any Self-Designed Major is the in-depth study of a particular area, rather than an overview of several academic fields. The Self-Designed Major should help students achieve the same degree of expertise or specialization as a conventional major.
- C. Reasons for proposing a Self-Designed Major should include intellectual growth and professional goals. The Academic Affairs Committee will especially scrutinize any Self-Designed Major that simulates a business major, communications major, other technical major, or any other major specifically disallowed by the faculty.
- D. The Self-Designed Major should include both introductory and upper-level courses in its constituent departments. Introductory courses should generally be taken in advance of more specialized courses.

### II. Requirements for the Self-Designed Major:

- A. The student must have a grade point average (GPA) of 3.33 or better to propose a self designed major and must be in his/her sophomore year.
- B. The proposal must include a rationale for choosing a Self-Designed Major rather than a conventional major.
- C. The Self-Designed Major must include courses from at least three academic departments, all related to and converging on the theme of the Self-Designed Major.
- D. The Self-Designed Major must total at least sixty-four (64) semester hours, including the two-course semester hour. At least thirty-two (32) hours must be 300-level or above.
- E. The proposal must include a plan for a two-term 8-semester hour independent research project, to be undertaken in the senior year. An independent project integrating the major is preferred. The title and goals for the independent project must be specified in the proposal.
- F. The Self-Designed Major must include the names and signatures of three sponsoring faculty, one from each academic department. The student will select one from among the three to serve as the director who will serve as an advocate for the student in the approval process. The Director will also serve as the student's faculty advisor.
- G. Any changes in the Self-Designed Major must be submitted on a Self-Designed Major Amendment Form (on Student Records website) to the Office of the Associate Dean of Arts & Sciences with all signatures and dated.

### III. Procedures for the Self-Designed Major:

- A. Students must submit the proposal to the Office of the Associate Dean of Arts & Sciences by March 1st of their sophomore year. With the proposal, students must submit a current transcript and a detailed letter of support from the Director of his/her Self-Designed Major.
- B. The Associate Dean of Arts & Sciences will forward the proposal to the Chair of the Academic Affairs Committee (AAC) for scheduling at a future AAC meeting.
- C. The AAC will consider the proposal, make a determination, and inform the student as to whether the proposal has been accepted or rejected.

Please Note: Li Wei will send letter of support via e-mail by March 1st.



# SELF-DESIGNED MAJOR COURSE OF STUDY

List the courses (by department) you propose to have included in your Self-Designed Major. Show by course number and title, and indicate with an "X" those courses already completed.

DEPARTMENT: Modern Languages

Course #	Title	Completed - "X"
<del>10088</del> CHN 101	Elem Chinese I	X
<del>10090</del> CHN 102	Elem Chinese II	X
CHN 151	Elem CHN Conversation I	X
CHN 152	Elem CHN Conversation II	X
CHN 201	Intermediate Chinese I	X

DEPARTMENT: Modern Languages

Course #	Title	Completed - "X"
CHN 202	Intermediate Chinese II	X
CHN 251	Intermed CHN Conversation I	X
CHN 252	Intermed CHN Conversation II	
CHN 301	Advanced Chinese I	
CHN 302	Advanced Chinese II	

DEPARTMENT: Modern Languages

Course #	Title	Completed - "X"
CHN 400	Advanced Chinese Lang Study	
	<del>AND</del>	
CHN 401	Advanced Chinese Independent Study	

RELATED ELECTIVES: \_\_\_\_\_

Course #	Title	Completed - "X"

Senior Project Title \_\_\_\_\_

Signature of Student: _____	Date: <u>2/11/15</u>
Signature of Director: _____	Date: <u>2/11/15</u>
Signature of Faculty Sponsors: _____	Date: <u>2/11/15</u>
Signature of Representative of AAC: _____	Date: <u>2/17/15</u>
Signature of Associate Dean of A&S: _____	Date: _____

**NOTE:** Any changes in this Self-Designed Major proposal must be submitted on an Amendment Form (available on the Student Records website) with all signatures and dated. The Amendment form should be submitted for review and approval by the Dean or Associate Dean of Arts & Sciences or an authorized representative of the Academic Affairs Committee (AAC).

*minor*  
**SELF-DESIGNED MAJOR PROPOSAL FORM**

NAME: Dylan Bassham R-Number: 01083982  
E-Mail: DBassham@rollins.edu Local Phone: 570-574-2874 Date Filed: 2/11/15  
Total Semester Credits Earned: 79 60 Class Standing:    Freshman ☒ Sophomore    Junior  
CUM G.P.A. 3.64 Current Academic Advisor: Dr. Allen, Ian

Please provide a concise descriptive title of your **Self-Designed Major** to be included in your permanent record:

Chinese Minor

Please indicate the academic departments to be involved in your **Self-Designed Major**.

Modern Languages  
International Business  
Anthropology

Director's Name: Prof. Li Wei Department: Modern Languages  
Sponsor 1 Name: Dr. Ian Allen Department: Int Bus  
Sponsor 2 Name: Rich M... Department: Anthro

Please respond to the following questions in your proposal (attach additional pages if necessary).

*Why do you wish to pursue a Self-Design Study Major instead of a conventional major?*

*What do you intend to do after completing it?*

*Why have you chosen the departments indicated and the particular courses chosen?*

*What are the goals and plans for your independent research project?*



*minor*

*Why do you wish to pursue a Self-Design Study Major instead of a conventional major?*

As a person of Chinese descent, with family still in Beijing, many trips to China, and playing on the Chinese national lacrosse team, I have been blessed with the opportunity of seeing the best and worst aspects of two very different cultures. I have made connections and grown friendships with Chinese people simply because I understand their culture and values. And now, I want to fully immerse myself in the language and become fluent. The Chinese are a very proud people and I want to utilize all of the tools I have been born with to further my career and grow as an individual. As an International Business major, and Asian Studies minor, China is the country I want to work in. As the world constantly globalizes, countries are becoming closer on a daily basis and China is evolving into an economic world power. It is also important for me to get more in touch with my Oriental side and further expand my knowledge of the language of my heritage.

*What do you intend to do after completing it?*

After completing the Chinese minor, I plan on working in China or at least working with a company in the China sector. I have an internship this summer in Shanghai and hope that it opens doors to other job opportunities after graduation. With a Chinese minor, I will be showing employers that I have not only an interest in the language, but am also proficient in it.

*Why have you chosen the departments indicated and the particular courses chosen?*

The classes I have chosen are strictly from the Modern Languages department because this self-designed minor is to learn the language. I do not want take away from the Asian Studies minor by requiring classes of culture or literature. Instead, I believe a 400-level independent study will be the culmination of a long, language journey. I will remain an Asian Studies minor to learn the culture of the area and a fluency in Chinese will make me a perfect candidate for a job. The advanced courses will prepare me for opportunities to teach, research, and expand my professional opportunities across the world.

*What are the goals and plans for your independent research project?*

My self-designed Chinese minor will not have a specific independent research project, but it will require at least a single 400-level independent study course. This will allow me optimal and personal time to learn the language in a classroom setting. Because my major is International Business, this final independent study of this self-designed minor will be a Business Chinese based language course, which is not possible without this curriculum.

~~Email Wei about internship~~



# Major Map: Biology

Effective date: Spring 2015

The biology major exposes students to a wide variety of field, laboratory, and classroom experiences fundamental to the life sciences. Through selected electives, students may concentrate on specific areas of interest such as marine biology, ecology, microbiology, botany, zoology, or molecular biology. The major also offers the flexibility for students to minor in another area or to fulfill requirements for secondary teaching certification. Students have excellent opportunities to engage in independent research projects. Graduates are prepared to pursue employment in biological laboratories, and for further study in the health professions or graduate research institutions. Eleven (11) core courses are required: seven (7) core biology courses and three (3) core chemistry courses. In addition, a minimum of ten (10) semester hours of BIO prefix elective courses (BIO 210 or higher), one (1) additional science course, and satisfactory performance on a comprehensive standardized examination are also required. At least seven (7) courses required for the biology major must be taken at Rollins College or as part of a Rollins sanctioned program (e.g. Duke Marine lab, University of London). Of these seven (7), at least five (5) must be BIO prefix courses beyond BIO 120/121.

*Students may not simultaneously major or minor in Biology and Marine Biology, or Biochemistry Molecular Biology.*

## CORE BIOLOGY COURSES

Semester	Course	Prerequisite	Grade	G.E. *
_____	BIO 120 General Biology I		_____	_____
_____	BIO 121 General Biology II	BIO 120	_____	_____
_____	One course in <b>Molecular Biology/Genetics</b> :		_____	_____
	o BIO 308 Genetics	BIO 121 & CHM 121		
	o BIO 341 Molecular Biology	BIO 121 & CHM 220		
_____	One course in <b>Ecosystems/Field Study</b> :		_____	_____
	o BIO 316 Ecology	BIO 121		
	o BIO 330 Field Botany	BIO 121		
	o BIO 210 Intro. Mar. Sci. & Bio 388	BIO 121		
_____	One course in <b>Physiology</b> :		_____	_____
	o BIO 311 Plant Physiology	BIO 121 & CHM 121		
	o BIO 312 Animal Physiology	BIO 121 & CHM 121		
	o BIO 360 Cellular Biology	BIO 121 & CHM 121		
_____	BIO 344 Biology Journal Club		_____	_____
_____	BIO 440 Senior Seminar	Senior Standing	_____	_____
	<b>or</b>			
_____	BIO 499 Independent Study: Biological Research	Senior Standing	_____	_____

## CORE CHEMISTRY COURSES

Three courses in Chemistry selected from the list below

Semester	Course	Prerequisite	Grade	G.E. *
_____	CHM 120 Chemistry I		_____	_____
_____	CHM 121 Chemistry II	CHM 120	_____	_____
_____	CHM 220 Organic Chemistry I	CHM 121	_____	_____
_____	CHM 221 Organic Chemistry II	CHM 220	_____	_____

**BIOLOGY ELECTIVES** A minimum of ten (10) semester hours comprising any biology courses from BIO 210 and above. Courses from the core groupings, other than those used to satisfy the core, may be used as electives. One (1) Biological Internship (BIO 396) may be used as an elective. Plants play a central role in our biosphere. However, our modern society often fails to recognize the significance of plants in biological systems, the scientific contributions of plant-based research, and the importance of plants in human affairs. Therefore, the department recommends at least one (1) of the courses taken to fulfill the requirements for a major in biology be a plant-oriented biology course.

Semester	Course	Prerequisite	Grade	G.E. *
_____	BIO _____	Check Catalogue	_____	_____
_____	BIO _____	Check Catalogue	_____	_____
_____	BIO _____	Check Catalogue	_____	_____

**ADDITIONAL REQUIRED ELECTIVE** One course [minimum of six (6) semester hours] selected from the following: PHY 120 or above, CHM 301 or above, PSY 250 or above, MAT 111 or above.

Semester	Course	Prerequisite	Grade	G.E. *
_____	BIO _____	Check Catalogue	_____	_____

➤ Satisfactory performance on a comprehensive standardized examination is required of all majors.

**OFF-CAMPUS EXPERIENCES** Rollins College, has an agreement with Marine Biological Laboratories at Duke University, and Woods Hole enabling students to spend a semester at these sites. Courses taken at Duke lab can be used to fulfill two courses in the bio major (any combination of core and electives). Students participating in the Semester in Environmental Science at Woods Hole will be able to use courses taken there as the core course in ecosystems/field study and up to two (2) electives. Students need to petition and receive approval from the Department of Biology for this and any other off-campus program.

**RECOMMENDATION** Students preparing for graduate programs in biology or professional schools, in health-related areas such as medicine, dentistry, veterinary medicine, or pharmacy need a thorough introduction to physics and calculus. Therefore, they are advised to take CHM 221 or CHM 320 and PHY 120 and PHY 121 or PHY 130 and PHY 131, a calculus course(s), and a statistics course. In addition, some professional schools now require biochemistry. Students should be aware that requirements of different programs can vary and they should seek guidance from advisors and program directors.

See the *Rollins College Catalogue* for a comprehensive listing of all requirements.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Biology

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Changes effective Fall Term 2015

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<del>Engstrom</del>	Fokidis	Gregory	Harper
Klemann	Pieczynski	Schmalstig	<del>Segarra</del>
Stephenson	Sutherland	Walsh	Young

The biology major exposes students to a wide variety of field, laboratory, and classroom experiences fundamental to the life sciences. Through selected electives, students may concentrate on specific areas of interest such as marine biology, ecology, microbiology, botany, zoology, or molecular biology. The major also offers the flexibility for students to minor in another area or to fulfill requirements for secondary teaching certification. Students have excellent opportunities to engage in independent research projects. Graduates are prepared to pursue employment in biological laboratories, and for further study in the health professions or graduate research institutions. **Students may not simultaneously major or minor in biology and marine biology, or biochemistry/molecular biology.**

## MAJOR REQUIREMENTS

Eleven (11) courses and an additional 10 semester hours of BIO prefix elective course credit are required: seven (7) core biology courses, four (4) core physical science courses, 10 semester hours of elective courses, and satisfactory performance on a comprehensive standardized examination. At least seven (7) of the eleven (11) courses required for the biology major must be taken at Rollins College or as part of a Rollins-sanctioned program (e.g., Duke Marine Laboratory, University of London). Of these seven (7), at least five (5) must be **BIO** courses beyond **BIO 120/121**.

### CORE BIOLOGY COURSES (seven courses)

- **BIO 120 General Biology I**
- **BIO 121 General Biology II**
- **One course in molecular biology/genetics**
  - **BIO 308 Genetics**
  - **BIO 341 Molecular Biology**
- **One course in ecosystems/field study**
  - **BIO 210 Introduction to Marine Science and BIO 388 Marine Biology Laboratory**
  - **BIO 316 Ecology**
  - **BIO 330 Field Botany and Florida Ecosystems**

- One course in physiology
  - BIO 311 Plant Physiology
  - BIO 312 Animal Physiology
  - BIO 360 Cellular Biology
- BIO 344 Biology Journal Club
- BIO 440 Senior Seminar OR BIO 499 Independent Study: Biological Research

#### CORE ~~PHYSICAL SCIENCE~~ CHEMISTRY COURSES (~~four~~ three courses)

- CHM 120 General Chemistry I
- CHM 121 General Chemistry II
- CHM 220 Organic Chemistry I
- ~~PHY 120 General Physics I~~

#### OR

- CHM 121 General Chemistry II
- CHM 220 Organic Chemistry I
- CHM 221 Organic Chemistry II
- ~~PHY 120 General Physics I~~

#### BIOLOGY ELECTIVES

Ten (10) semester hours.

- Any biology course above **BIO 210**. Courses from the core groupings, other than those used to satisfy the core, may be used as electives. One *Biological Internship (BIO 396)* may be used as an elective.
- Plants play a central role in our biosphere. However, our modern society often fails to recognize the significance of plants in biological systems, the scientific contributions of plant-based research, and the importance of plants in human affairs. Therefore, the department recommends that at least one (1) of the courses taken to fulfill the requirements for a major in biology be a plant-oriented biology course.

#### ADDITIONAL REQUIRED ELECTIVE

Six (6) semester hours

- One course of at least six (6) semester hours selected from the following: PHY 120 or above, CHM 301 or above, PSY 250 or above, MAT 111 or above.

#### RECOMMENDATIONS

Students preparing for graduate programs in biology or professional schools, in health-related areas such as medicine, dentistry, veterinary medicine, or pharmacy need a thorough introduction to chemistry, physics, and mathematics. Therefore, they are advised to take **CHM 221** and **PHY 120 and PHY 121** or **PHY 130 and PHY 131**, (a) calculus course(s), and a statistics course. In

addition, some professional schools now require biochemistry. Students should be aware that requirements of different programs can vary and that they should seek guidance from advisors and program directors.

## OFF-CAMPUS EXPERIENCES

Rollins College, has an agreement with Marine Biological Laboratories at Duke University and Woods Hole enabling students to spend a semester at these sites. Courses taken at the Duke lab can be used to fulfill two courses in the biology major (any combination of core and electives). Students participating in the Semester in Environmental Science at Woods Hole will be able to use courses taken there as the core course in ecosystems/field study and up to two (2) electives. Students need to petition and receive approval from the Department of Biology for this and any other off-campus program.

## MINOR REQUIREMENTS

Six (6) core courses and an additional 10 semester hours of BIO prefix elective course credit are required: four (4) core biology courses, two (2) core chemistry courses, and 10 semester hours of elective courses. At least four (4) of the courses required for the biology minor must be taken at Rollins College or as part of a Rollins sanctioned program (e.g., Duke Marine lab, University of London). Of these four (4), at least three (3) must be **BIO** courses beyond **BIO 120/121**.

### CORE BIOLOGY COURSES (four courses)

- **BIO 120 General Biology I**
- **BIO 121 General Biology II**

**Two (2) courses satisfying two (2) out of the following three (3) clusters: molecular biology/genetics, ecosystems/field study, and physiology.**

- **Molecular biology/genetics**
  - **BIO 308 Genetics**
  - **BIO 341 Molecular Biology**
- **Ecosystems/Field study**
  - **BIO 210 Introduction to Marine Science and BIO 388 Marine Biology Laboratory**
  - **BIO 316 Ecology**
  - **BIO 330 Field Botany and Florida Ecosystems**
- **Physiology**
  - **BIO 311 Plant Physiology**
  - **BIO 312 Animal Physiology**
  - **BIO 360 Cellular Biology**

### CORE CHEMISTRY COURSES (two courses in Chemistry selected from the list below.)

- **CHM 120 General Chemistry I**



- **CHM 121 General Chemistry II**
- **CHM 220 Organic Chemistry I**

#### BIOLOGY ELECTIVES

Ten (10) semester hours; at least one of the elective courses must be at the **300-** or **400-level**.

Any biology course above **BIO 210**. After satisfying core requirements in the cellular/molecular biology and ecosystems/field study, additional courses from these clusters may be used as electives.

## **Memorandum**

**To:** Academic Affairs Committee

**From:** Julie Carrington, Computer Science Program (Mathematics and Computer Science Department)

**Date:** February 20, 2015

**Re:** Changes in Computer Science major and minor requirements and new course proposals.

In the spring of 2013, the computer science programs in Holt and in A&S underwent a complete program review. The college contracted with Dr. Henry Walker, a consultant on Computer Science curricula in the context of Liberal Arts, and former chair of the Special Interest Group on Computer Science Education of the Association for Computing Machinery, and Dr. Sue Fitzgerald, expert in Computer Science in adult evening education, to spend two days at Rollins, meeting with administrators, faculty, students and alumni to thoroughly assess the two computer science programs. The result was a 75 page report that included strong recommendations that we unify our two programs, that we continue to keep current with the latest Association for Computing Machinery curricular guidelines and that we update our elective list.

- The unification of our two programs was probably the most emphatic recommendation from our reviewers and, apart from the fact that the same Rollins diploma should have the same meaning regardless of the program, we also hope to see some improvement in our ability to recruit students.
- The Computer Science Program has always had as one of its goals, to maintain currency with the curricular guidelines issued by the ACM. Coincidentally with our again having full-time, permanent faculty, ACM issued new curricular guidelines in 2013. The ACM body of knowledge is broken into Knowledge Areas, which are further broken into Knowledge Units. The Knowledge Units are categorized as Tier-1 required, Tier-2 required and elective with some number of hours specified for each level. Our goal is to ensure that our courses include all, or nearly all, of the Tier-1 hours and many of the Tier-2 hours. On the other hand, we don't want to increase the requirements for either program.
- We need an updated list of electives to reflect changes in the discipline since the last changes we made in 2007, as well as the changing interests of our students and new faculty.

The following is a summary of our proposed changes with the rationale for those changes.

- Calculus is being eliminated as a requirement for the major. The ACM guidelines no longer make any recommendation about calculus at all. For that reason, as well as the fact that it would be difficult to add calculus as a requirement in the Holt program, we have removed it from the A&S requirements. We will continue to recommend that any student who is considering graduate studies should take calculus and, in fact, should consider a minor in mathematics.
- The computer science minor will change in both A&S and Holt to reflect the changes in the majors.

- The remaining differences between our two current programs are in four courses: two (Algorithms Analysis and Simulation Analysis and Design) required in A&S but not in Holt and another two (Database Design and Development and Networks) required in Holt but not in A&S. All four include Tier-1 hours in the ACM guidelines.
  - Algorithms Analysis is at the heart of the science of computing and is strongly recommended for students planning on graduate studies. In addition, this course has a strong ‘writing in the discipline’ component. On the other hand, it is mathematically challenging and probably inaccessible to most Holt students, few of whom are contemplating graduate studies.
  - The importance of Networks in the modern practice of computing is obvious. Although Networks is not required in the A&S program, most of our students understand its importance and take it as one of their electives.
  - There is no mention in the curricular guidelines of the topic of simulation, although, given the importance of simulation in the Orlando area, it has certainly proven useful to our students. The real importance of our Simulation and Analysis and Design course is as a vehicle for our students to learn the Tier 1 content of probability and statistics in context. To paraphrase from the course justification: Probability and statistics are intrinsic to simulation. There are distributions of inter-arrival times, service times, batch sizes, etc. and the outcomes are analyzed using measures such as means, variances, confidence intervals and hypothesis tests such as t-tests. Although the Q requirement will go away, the need for this knowledge will not.
  - Those of our alumni who are employed as developers are unanimous in telling us that Database Design and Development should be required for all students not planning on graduate school. We agree and, like Networks, we would include it in the A&S requirements, if that didn’t mean eliminating something else.

Our solution is to drop the number of core courses from eleven to nine and increase the requirement of electives to four. (Thus, the total number of courses, at 13, remains the same in Holt and is a reduction by one in A&S.) We create two groups of ‘special’ electives with the requirement that, among their four electives, students take at least one from each of these groups. All will be cross-listed and so open to all students, although, for example, Algorithms Analysis will continue to be offered only during the day. An additional change is that all four hundred level electives will have a writing component.

- The changes in our course descriptions and our list of electives are as follows.
  - CMS 270 should be a four credit, not a five credit course.
  - Again, all 400 level electives will include a writing component. (The two Group 2 electives will carry the R general education requirement for Holt.)
  - The catalogue description for Algorithms Analysis remains the same but the course number has changed from CMS 360 to CMS 460. This is a course that is frequently only taught at the graduate level, is

mathematically challenging, and is nearly always cited as the most difficult course in our curriculum. It is taught as and should be a 400 level course.

- We will add a 400 level Special Topics in Holt, that is, CMS 495, to be consistent with A&S. Special Topics is a vehicle to try new courses and it should be possible try new electives at either the 300 or the 400 level.
- From the Holt list of electives, CMS 371 – Developing Database Applications is being eliminated. From the A&S list, CMS 440 – Computer Graphics is being eliminated.
- The following are new courses. Their new course proposals are attached.
  - CMS 340 – Mobile App Development.
  - CMS 350 – Web Application Development.
  - CMS 440 – Advanced Computer Systems.



# NEW COURSE PROPOSAL FORM

Form Approved February, 2009  
Academic Affairs Committee



## ARTS & SCIENCES

### RECORDS OFFICE USE ONLY

SUBJ \_\_\_\_\_ NUM \_\_\_\_\_ GER \_\_\_\_\_ CAT TITLE: \_\_\_\_\_ CR RANGE: \_\_\_\_\_

☐ CORE \* ☐ MELC \* ☐ MINR \* ☐ MREC \* ☐ CREC \* ☐ CONC \* ☐ ELEC \* ☐ BPE \* ☐ PEA INITIALS: \_\_\_\_\_

### Section I: Catalog Information

This section serves to identify the course with all relevant information required for a catalog listing.

Course Title: \_\_\_\_\_

Instructor: \_\_\_\_\_ Department: \_\_\_\_\_

Number of credits: \_\_\_\_\_  Requested course number: \_\_\_\_\_

Catalog Description (30 words or less):

Transcript title (30 chars): \_\_\_\_\_

Course prerequisites: \_\_\_\_\_

Preferred scheduling mode (check one from each that applies) or attach description in Section VI.



Main Meetings (Lecture/Discussion)

Days/Week

- ☐ 1  
☐ 2  
☐ 3  
☐ 4  
☐ 5

Duration

- ☐ 50 min  
☐ 75 min  
☐ 110 min  
☐ 150-180 min  
☐ 240 min

Additional meetings (Lab/Studio)

Days/Week

- ☐ 1  
☐ 2  
☐ 3  
☐ 4  
☐ 5

Duration

- ☐ 50 min  
☐ 75 min  
☐ 110 min  
☐ 150-180 min  
☐ 240 min

Grading: ☐ standard letter grades ☐ credit/no credit

## Section II: Course Justification

Briefly (one paragraph) describe the advantages in adding this course to the Rollins College offerings.

## Section III: Curricular/Staffing Impact

Information in this section will aid the New Course Subcommittee in evaluating the enrollment and staffing implications of the new course proposed.

Typical enrollees (check all that apply):

☐ Majors

☐ Minors

☐ Non-majors

☐ Evening program

☐ Freshmen

☐ Sophomores

☐ Juniors

☐ Seniors

☐ Graduate

Majors and Minors: Describe below whether this course counts as a major and/or minor requirement and whether it serves as a required course or elective course within the major.

In general, how often will this course be offered?

☐ Rarely

☐ Every 2yr

☐ Every yr

☐ Every semester

☐ More than 1/semester

During which semester are you hoping to first offer the course? \_\_\_\_\_

Which other Rollins faculty may teach this course (or, none)? \_\_\_\_\_

Which course does this replace (or, none)? \_\_\_\_\_

Does this course overlap with other courses now being offered? If so, which course(s), and what impact do you anticipate?

How many electives does your department offer per year? \_\_\_\_\_

#### ***Section IV: Academic Standards***

Information in this section will aid the New Course Subcommittee to verify that the new course meets the norms of academic rigor expected at Rollins College.

How does this course relate to the area of specialization of the sponsoring faculty?

What are the learning outcomes for this class?

What methods will you use to evaluate whether the learning outcomes have been met?

#### ***Section V: Additional Information (Optional)***

Use this section to provide any other pertinent information or explication. You may also use this section to describe non-standard scheduling or credits (Section I). Normally, this section will be left blank.

## Section VI: General Education Requirements

Instructors who wish their course to meet a general education requirement must fill out a separate General Education Designation Request form and submit it along with this form to the Associate Dean for Academic Affairs. Failure to do so will prevent even an approved new course from carrying a General Education Designation. In addition, in most cases this form must be submitted by any new instructor proposing to teach the approved course.

Is a General Education Designation being requested for this course and this instructor? ☐ Yes ☐ No 

If Yes, which?

SKILLS: ☐ Foreign Language ☐ Quantitative Methods ☐ Decision Making and Valuation

COGNITIVE: ☐ Other Cultures ☐ Natural Laboratory Course ☐ Development of Western Society  
☐ Organic Science ☐ Physical Science ☐ Contemporary Society

AFFECTIVE: ☐ Expressive Arts ☐ Literature

## Section VII: Approvals

Electronic signatures permitted. Faculty sponsor should submit the form with the Department Chair and any interdisciplinary program chair signatures required. AAC will provide the remaining two signatures.

Include signature and date: 

Faculty Sponsor: \_\_\_\_\_

Department Chair: \_\_\_\_\_

Interdisciplinary  
Department Chair: \_\_\_\_\_

Interdisciplinary  
Department Chair: \_\_\_\_\_

AAC New Course  
Subcommittee Chair: \_\_\_\_\_

Dean of Faculty: \_\_\_\_\_



# NEW COURSE PROPOSAL FORM

Form Approved February, 2009  
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Typical enrollees (check all that apply):

- |                                   |                                     |                                     |  |                                   |
|-----------------------------------|-------------------------------------|-------------------------------------|--|-----------------------------------|
| <input type="checkbox"/> Majors   | <input type="checkbox"/> Minors     | <input type="checkbox"/> Non-majors | <input type="checkbox"/> Evening program |                                   |
| <input type="checkbox"/> Freshmen | <input type="checkbox"/> Sophomores | <input type="checkbox"/> Juniors    | <input type="checkbox"/> Seniors         | <input type="checkbox"/> Graduate |

Majors and Minors: Describe below whether this course counts as a major and/or minor requirement and whether it serves as a required course or elective course within the major.

In general, how often will this course be offered?

- ☐ Rarely    ☐ Every 2yr    ☐ Every yr    ☐ Every semester    ☐ More than 1/semester

During which semester are you hoping to first offer the course? \_\_\_\_\_

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What are the learning outcomes for this class?

What methods will you use to evaluate whether the learning outcomes have been met?

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Department Chair: \_\_\_\_\_

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Interdisciplinary  
Department Chair: \_\_\_\_\_

Interdisciplinary  
Department Chair: \_\_\_\_\_

AAC New Course  
Subcommittee Chair: \_\_\_\_\_

Dean of Faculty: \_\_\_\_\_

**CMS 151 Fundamentals of Programming:** Introduces the central themes of computing with an emphasis on creating machines that solve problems. Focuses on problem-solving techniques coupled with programming robots. Includes use of both a graphical software development system and the writing of simple programs using the Java language. No prior programming skills required. Does not count toward requirements for major or minor.

**CMS 167 Problem Solving I with Selected Topics:** Introduction to fundamental aspects of programming, focusing on problem solving, software design concepts, and their realization as computer programs. Topics include: variables, procedural abstraction, control structures, iteration, representation of numbers, and data types. Introduction to high-level programming language to gain mastery of these classroom activities in conjunction with the closed laboratory experiences in ~~CMS 167L~~. ~~Corequisite: CMS 167L~~.

**CMS 167 Problem Solving I with Selected Topics:** Introduction to fundamental aspects of programming using a high-level language, focusing on problem solving, software design concepts, and their realization as computer programs. Topics include: variables, using existing classes, selection and iteration, ~~writing user-defined classes~~, and ~~single-dimensional arrays~~. Classroom activities are used to gain mastery of these principles. ~~Corequisite: CMS 167L~~.

**CMS 167L Problem Solving I Lab:** Develops proficiency in using the programming principles introduced in CMS 167 and experience in incorporating those principles into working computer programs. *Corequisite: CMS 167.*

**CMS 170 Problem Solving II with Selected Topics:** Develops discipline in program design, problem solving, debugging, and testing, with an introduction to data structures. Topics include: abstract data types, complexity analysis, and recursion. Basic data structures (queues, stacks, trees, and graphs) and transformations (sorting and searching) are introduced as representative of the fundamental tools that are used to aid in software development. A high-level programming language is used to construct programs of a moderate size. *Prerequisite: CMS 167/167L.*

**CMS 230 Introduction to Computer Systems:** Introduction to the study of how software controls the critical hardware components of a computer's architecture, the CPU and RAM. Topics include development of C language programs, comparison of high-order procedural languages to machine language programs, CPU organization and functionality at the register/bus level, instruction formats, and development of machine language and assembly level programs using multiple addressing modes, flow-of-control branching and subroutine calls. *Prerequisites: CMS 170 and MAT 140.*

**CMS 270 Object-Oriented Design and Development:** Object-oriented programming, event-driven programming, UML, unit testing, virtual machines, design patterns, exception handling, and user interfaces. Uses Java and assumes knowledge of a procedural or object-oriented language. *Prerequisite: CMS 170.*

**CMS 330: System Software Principles:** Short history of programming languages and their construction. Techniques of language translation including lexical analysis, grammars, and parsers. Analysis of the structure and functionality of modern operating system software, with emphasis on concurrent processes. Topics include: process scheduling, communication, and synchronization; API services; and, design and development of concurrent program using OS features. *Prerequisite: CMS 230.*

**CMS 340: Mobile App Development:** This course covers the development of mobile apps using an emulation system. Topics covered include application architectures, user interface design, graphics, location services, data persistence, web and network services and sensors. *Prerequisite: CMS 270.*

**CMS 350: Web Application Development:** Programming techniques and frameworks for Web-based applications. Topics include Javascript and server-side development using the model-view-controller design pattern. *Prerequisites: CMS 270.*

**CMS 360 Algorithm Analysis:** Detailed study of algorithm design and analysis, including greedy algorithm, divide and conquer, dynamic programming, backtracking, and branch and bound. Emphasis on verification and analysis of time-space complexity. NP theory is introduced. *Prerequisites: CMS 270 and MAT 140.*

**CMS 375 Database Design and Development:** Introduction to design and management of database systems. The course project involves design and implementation of a relational database. Topics include file organization, relational models and their implementations, query language theory, and data normalization. *Prerequisites: CMS 270 and MAT 140.*

**CMS 375 Database Design and Development** An introduction to the design and implementation of database systems. Using a relational database as a backdrop, this course addresses design issues, structured query language (SQL), data integrity, normalization, transaction processing, writing triggers and stored procedures, and developing applications using a custom database language and with Java and JDBC. This course also explores NoSQL data models. Students will need access to a PC or Mac on which to load the database software that will be used in the course. Note: System requirements may vary from year to year. *Prerequisite:* **CMS 270**.

**CMS 380 Simulation Analysis and Design:** Explores the use of probability theory and statistical methods in the development of computer simulations used to study/model real-world phenomenon. *Prerequisite:* **CMS 270**.

**CMS 395 Special Topics:** An intensive introduction to a specialized area of computer science. Example topics are: user interface design, parallel and distributed processing, multimedia development, theory of computation, network programming, modeling and simulation, and software development tools. *Prerequisites:* **CMS 270**.

**CMS 430 Artificial Intelligence:** Selective survey of key concepts and applications of artificial intelligence and an in-depth experience with a language commonly used for building AI systems (e.g., LISP or Prolog). Subtopics include knowledge representation, state space/searching, heuristic search, expert systems, expert system shells, natural language processing, propositional logic, learning and cognitive models, and vision. *Prerequisite:* **MAT 310**.

**CMS 440 Advanced Systems:** Further topics in computer systems, including computer architecture, virtual memory, storage, and distributed systems. Substantial programming projects in the C language are required. *Prerequisites:* **CMS 330**.

~~**CMS 440 Computer Graphics:** Survey of computer graphic hardware, primitive graphic operations and implementations, two-dimensional and three-dimensional transformations, hidden lines and surface removal, illumination and shading models, curves and surface, color modeling, and animation. *Prerequisite:* **CMS 270 and MAT 111**.~~

**CMS 450 Networks:** Study of the technology, architecture, and software used by systems of network-connected computers. Topics include data transmission, local area network architectures, network protocols, inter-networking, distributed systems, security, and network applications such as email, WWW, and FTP. Students will develop programs that run concurrently on multiple computers. *Prerequisite:* **CMS 330**.

**CMS 360 460 Algorithm Analysis:** Detailed study of algorithm design and analysis, including greedy algorithms, divide and conquer, dynamic programming, backtracking, and branch and bound. Emphasis on verification and analysis of time space complexity. NP theory is introduced. *Prerequisites:* **CMS 270 and MAT 140**.

**CMS 480 Programming Language Translation:** An in-depth study of the principles and design aspects of programming language translation. The major components of a compiler are discussed: lexical analysis, syntactic analysis, type checking, code generation, and optimization. Alternate parsing strategies are presented and compared with respect to space and time tradeoffs. A course project consists of the design and construction of a small compiler. *Prerequisites:* **CMS 270 and CMS 330**.

**CMS 484 Senior Computer Science Capstone:** The Senior Capstone course provides a culminating and integrative educational experience. While participating on a team with other students, students will design and implement a large-scale software project. Class meetings will be used for teams to demonstrate the progress of their project as well as for the teams to meet and work. Team meetings outside of class will be required. *Prerequisite:* one **400-level CMS** course.

**CMS 495 Topics in Computer Science:** An intensive exploration of a specialized area of computer science.

**CMS 499 Independent Study:** Covers selected topics in computer science. May be repeated for credit.

The Department of Mathematics and Computer Science offers a computer science major that develops students' ability to design and implement computer programs to solve many types of problems. Based on curricula developed by the Association for Computing Machinery (ACM), the major prepares students for graduate study and for **many interesting careers in the computer industry**. The computer science minor complements any major for which computer applications are important. The minor also gives students excellent preparation for many computer-related occupations.

### MAJOR REQUIREMENTS

~~Fourteen (14)~~ Thirteen (13) courses are required, **all nine (9) core courses and four (4) electives, including at least one from each of group 1 and group 2**. A first-year student majoring in computer science will typically take **CMS 167/167L** and one of **MAT 111, MAT 109, MAT 110 or MAT 108** in the fall, then **CMS 170** and **MAT 140** in the spring.

### CORE COURSES

- CMS 167 Problem Solving I with Selected Topics
- CMS 167L Problem Solving I Lab
- CMS 170 Problem Solving II with Selected Topics
- CMS 230 Introduction to Computer Systems
- CMS 270 Object-Oriented Design and Development
- CMS 330 System Software Principles
- ~~CMS 360 Algorithm Analysis~~
- ~~CMS 380 Simulation Analysis and Design OR MAT 219 Probability and Statistics~~
- CMS 484 Senior Computer Science Capstone
- ~~MAT 111 Calculus I~~
- MAT 140 Introduction to Discrete Mathematics
- MAT 310 Applied Discrete Mathematics

### ELECTIVES

GROUP 1: At least one is required.

- CMS 375 Database Design and Development
- CMS 380 Simulation Design and Analysis

GROUP 2: At least one is required. A student who is considering graduate studies should take CMS 460.

- CMS 460 Algorithms Analysis
- CMS 450 Networks

Additional electives:

- CMS 340 Mobile App Development
- CMS 350 Web Application Development
- CMS 430 Artificial Intelligence
- CMS 440 Advanced Computer Systems
- CMS 480 Programming Language Translation
- CMS 495 Special Topics

**For students considering graduate school in computer science, a minor in Mathematics is recommended.**

### MINOR REQUIREMENTS



Seven (7) courses are required: the following five (5) courses and two (2) additional courses chosen from the requirements for the major.

#### CORE COURSES

- CMS 167 Problem Solving I with Selected Topics
- CMS 167L Problem Solving I Lab
- CMS 170 Problem Solving II with Selected Topics
- CMS 270 Object-Orientated Design and Development
- **MAT 140 Introduction to Discrete Mathematics (MAT 111 Calculus I OR MAT 110 Applied Calculus may be substituted but MAT 140 may not be used as one of the two additional classes.)**