Chair: Tracy Christofero

**GC#6: Course Addition** 

### **Request for Graduate Course Addition**

- 1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
- 2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
- 3. The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.

College:	Dept/Division:	Alpha Designator/Number:	Graded	( ) CR/NC
Contact Person:		Phone:		
NEW COURSE DATA:				
New Course Title:				
Alpha Designator/Number:				
Title Abbreviation:	() in it of 25 above there and ano	)		
	(Limit of 25 characters and space	ces)		
Course Catalog Description: (Limit of 30 words)				
Co-requisite(s):	First Term to be C	offered:	_	
Prerequisite(s):	Credit Hours:			
Course(s) being deleted in pl	ace of this addition (must submit cou	rse deletion form):		
Signatures: if disapproved at	any level, do not sign. Return to prev	ious signer with recommendation	n attached.	
Dept. Chair/Division Head			Date	
Registrar			Date	
College Curriculum Chair			Date	
Graduate Council Chair			Date	
I				

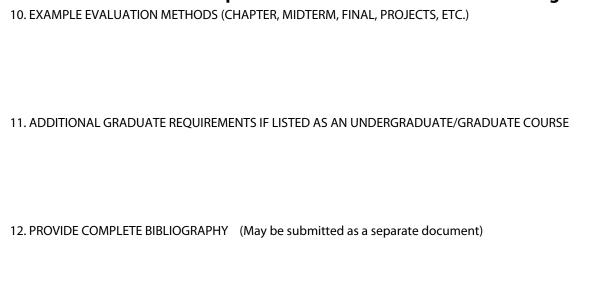
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College:	Department/Division:	Alpha Designator/Number:
	on regarding the new course addition for each to essing the items listed on the first page of this for	opic listed below. Before routing this form, a complete syllabus rm.
1. FACULTY: Identify by nar	me the faculty in your department/division who	may teach this course.
	on of possible duplication occurs, attach a copy Enter " <b>Not Applicable</b> " if not applicable.	of the correspondence sent to the appropriate department(s)
	s course will be required by another deparment	(s), identify it/them by name. Enter " <b>Not Applicable</b> " if not
applicable.		
4. AGREEMENTS: If there ar Enter " <b>Not Applicable</b> " if		periences, attach the details and the signed agreement.
this course, attach an estim		ditional faculty, equipment, or specialized materials to teach nese items. (Note: Approval of this form does not imply
	<b>,</b>	
6. COURSE OBJECTIVES: (N	May be submitted as a separate document)	

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exactly in this way (including headings):
Department: Course Number and Title: Catalog Description: Prerequisites: First Term Offered: Credit Hours:

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### Marshall University

### **Syllabus**

Course Title/Number Advance Programming/ CS 511

Semester/Year Fall/2019 Days/Time TBD

Location TBD Wook-Sung Yoo, Ph.D.

Office WAEC 3101A

Phone

**E-Mail** fuller@marshall.edu

Office/Hours TBD

**University Policies** By enrolling in this course, you agree to the University Policies listed

below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by

going to

http://www.marshall.edu/academic-affairs/?page\_id=802

Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services

Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/

Affirmative Action/ Sexual Harassment

#### **Course Description**

The course covers advanced topics in Python programming including the use of parallel computation and GPU acceleration and investigate how to exploit frameworks such as Hadoop and Spark.

#### **Course Student Learning Outcomes**

Upon successful completion of the course, students will be able to

- OC1: Apply advanced techniques for improving the performance of the programs (a,ck)<sup>1</sup>
- OC2: Identify and resolve syntax, logical, and runtime errors using analytical and active debugging techniques. (b,i)<sup>1</sup>
- OC3: Learn to work with frameworks such as Apace Hadoop and Apache Spark (a,b)<sup>1</sup>

Course Student Learning Outcomes	How students will practice each outcome	How student achievement of each outcome will be assessed in this course
OC1 Experiment with developing GPU accelerated Python applications	class lab exercises	Demonstrating Projects
OC2. Learn and apply programming techniques to manipulate data from databases and web repositories	In class lab exercises In class examples	Graded exam problems

OC3. Develop Python applications that utilize big data services such as Hadoop and Spark	In class lab exercises In class examples Ungraded homework assignments	Graded exam problems
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### Required Texts, Additional Reading, and Other Materials

### **Required Text**

Python Programming Advanced: A Complete Guide on Python Programming for Advanced Users (November, 2016), Author: Adam Stewart, ISBN-13: 9781540616944

### Additional Reading

#### Other Materials

Python web site
SciPy web site
Wing Integrated Development Environment

www.python.org www.scipy.org wingware.com/downloads/

### Course Requirements / Due Dates

Exams must be taken in class on the scheduled dates. Only Marshall University Excused Absences will be accepted. See the Course Schedule section below for the dates of the exams.

#### **Grading Policy**

Activity	Weight
Attendance	10%
<b>Group Project</b>	25%
Midterm	30%
Final Exam	35%

The course grade will be awarded based on the following scheme:

```
Score Letter Grade

≥ 90 A

≥ 80 & < 90 B

≥ 70 & < 80 C

≥ 60 & < 70 D

< 60 F
```

#### **Attendance Policy**

It is expected for students to attend all classes. Only University-excused absences will be accepted. Attendance accounts for 10% of the overall course grade. Every class you miss, there will be a penalty of -2 marks.

# CS 511Course Syllabus

# Course Schedule (subject to change)

Week	Topics
1	Working with Shell
2	Version Control
3	Python Performance Tips
4	Effective Code Reviews
5	The itertools Module
6	Python Performance Tuning
7	Cython
8	Numba
9	Python Concurrency
10	Parallel Programming 1
11	Python for GPUs
12	BigData with PySpark