

Program Change Request

Date Submitted: 11/29/18 1:26 pm

Viewing: **SC-MSP-BNFM : Bioinformatics Management, Professional Science Master's**

Last approved: 03/08/18 9:14 am

Last edit: 11/29/18 1:26 pm

Changes proposed by: jbazaz

Catalog Pages
Using this Program

[Bioinformatics Management, Professional Science Master's](#)

In Workflow

1. **SSB Program Chair**
2. **SC Curriculum Committee**
3. SC Associate Dean
4. BU GR Impacted Unit Approver
5. CS Representative-Graduate
6. ESP Chair
7. SC CAT Editor
8. Assoc Provost-Graduate
9. Registrar-Programs

Approval Path

1. 12/03/18 5:15 pm
Iosif Vaisman (ivaisman):
Approved for SSB Program Chair

History

1. Nov 16, 2017 by
clmig-jwehrheim
2. Mar 8, 2018 by
Rebekah Zacharias (rzachari)

Are you completing this form on someone else's behalf?

Yes

Requestor:

Name	Extension	Email
Vikas Chandhoke	5169	vchandho

Effective Catalog: 2019-2020

Program Level: Graduate

Program Type: Master's

Degree Type: Professional Science Masters

Title: Bioinformatics Management, Professional Science Master's

Banner Title: **Bioinformatics Management PSM**

Registrar/OAPI Use Only – SCHEV Status: Approved

Registrar's Office Use Only – Program Start Term

Registrar/OAPI Use Only – SCHEV Letter

Concentration(s):

Registrar/IRR Use Only – Concentration CIP Code

College/School: College of Science

Department / Academic Unit: School of Systems Biology

Jointly Owned Program? No

Justification: Modifying the "Professional Skills" section to include courses that are regularly offered.

Total Credits Required: Total credits: 31

Registrar's Office Use Only - Program Code: SC-MSP-BNFM

Registrar/IRR Use Only – Program CIP Code

Admission Requirements:

Admissions

University-wide admissions policies can be found in the [Graduate Admissions Policies](#) section of this catalog.

To apply for this program, please complete the [George Mason University Admissions Application](#).

Applicants should have a bachelor's degree in biology, computer science, or a related field with a GPA of at least 3.00 in their last 60 credits of study. Applicants should have taken courses in molecular biology, computer science, calculus, physical chemistry, and statistics. Students with deficiencies in one or more of these areas may be required to take additional courses from the undergraduate curriculum. To apply, prospective students should submit the [George Mason University Admissions Application](#), supply two copies of official transcripts from each college and graduate institution attended, a current résumé, and an expanded goals statement. Applicants should also include three letters of recommendation and official scores obtained on the GRE general exam. The GRE requirement will be waived if the student holds a master's degree from a U.S. institution. TOEFL or IELTS scores are required of all international applicants.

Program-Specific Policies:

Policies

For policies governing all graduate programs, see [AP.6 Graduate Policies](#).

Degree Requirements:

Students should refer to the [Admissions & Policies](#) tab for specific policies related to this program.

Due to the varied course options and their associated prerequisites, students are encouraged to create a program of study with their faculty advisor by the end of their first semester of studies.

Bioinformatics Courses

Code	Course List Title	Credits
BINF 630	Bioinformatics Methods	3
BINF 631	Molecular Cell Biology for Bioinformatics	3
BINF 702	Biological Data Analysis	3
Select two from the following or other BINF-prefixed courses in consultation with the faculty advisor:		6
BINF 633	Molecular Biotechnology	
BINF 634	Bioinformatics Programming	
BINF 650	Introduction to Bioinformatics Database Design	
BINF 731	Protein Structure Analysis	
BINF 732	Genomics	
BINF 740	Introduction to Biophysics	
Total Credits		15

Professional Skills Courses

Please note: MBA-prefixed courses are offered on an alternative semester schedule (view the [Schedule of Classes](#) for details). Considering this, it may be advisable to take these courses in one semester rather than over several.

Code	Course List Title	Credits
BINF 705	Research Ethics	1
MBA 712	Project Management	3
Select one course from the following that hasn't previously been taken:		3
BIOL 508	Selected Topics in Animal Biology 1	
COS 500	Professional Preparation for STEM Disciplines	
COS 600	Multidisciplinary Problem Solving and Leadership	
EVPP 638	Corporate Environmental Management and Policy	
AIT 671	Information System Infrastructure Lifecycle Management	
COMM 641	Advanced Communication Skills for STEM	
GBUS 540	Analysis of Financial Decisions	
GBUS 550	Strategic Thinking	
GBUS 613	Financial Reporting and Decision Making	
GBUS 623	Marketing Management	
GBUS 643	Managerial Finance	
GBUS 653	Organizational Behavior	
GBUS 738	Data Mining for Business Analytics	
or MBA 738	Data Mining for Business Analytics	
GCH 691	Project Management in Public Health	
HAP 713	Project Management in Health Information Technology	
MBA 712	Project Management	
MBA 715	Advanced Project and Program Management	
MBA 725	Leadership	

Code	Title	Credits
or GBUS 551	Leadership	
MBA 726	Negotiations	
MBA 730	Management of Technology and Innovation Processes	
MBA 738	Data Mining for Business Analytics	
PUAD 781	Information Management: Technology and Policy	
SWE 625	Software Project Management	
Or other courses in consultation with the faculty advisor		

Total Credits 7

1 When the topic is Research & Development in Biotechnology Companies.

Scientific Electives

Close attention should be paid to each course's prerequisites.

Code	Title	Credits
Select 6 credits in courses that haven't previously been taken, tailored to suit interests and goals in consultation with the faculty advisor.		
Big Data Analysis:		
CSI 695	Scientific Databases	
AIT 580	Analytics: Big Data to Information	
AIT 581	Problem Formation and Solving in Big Data	
AIT 622	Determining Needs for Complex Big Data Systems	
Synthetic and Systems Biology:		
BIOS 701	Systems Biology	
CHEM 665	Protein-Protein Interactions: Methods and Applications	
Human Health and Personal Genomics:		
BINF 732	Genomics	
BIOL 562	Personalized Medicine	
BIOL 566	Cancer Genomics	
BIOL 665	Environmental Hazards to Human Health	
BIOS 740	Laboratory Methods in Functional Genomics and Biotechnology	
BIOS 741	Genomics	
Software Development and Analysis:		
BINF 634	Bioinformatics Programming	
SWE 510	Object-Oriented Programming in Java	
SWE 619	Object-Oriented Software Specification and Construction	
SWE 621	Software Design and Architecture	
SWE 626	Software Project Laboratory	
SWE 637	Software Testing	
SWE 645	Component-Based Software Development	
SWE 760	Software Analysis and Design of Real-Time Systems	
Colloquium: 1		
BINF 704	Colloquium in Bioinformatics (may be repeated for up to 3 credits)	
Additional Internship Experience 2		
BINF 795	Bioinformatics Internship	

Total Credits 6

1If chosen, it is recommended that students take the colloquium course early in their studies so that they may be exposed to various possibilities and areas of research presented by the speakers.

2The maximum amount of internship credits that can be applied to the degree is 6 credits.

Internship

The internship component is intended to provide students with the opportunity to put into practice all of the skills and knowledge accumulated throughout their studies in this program. Students must arrange an internship with a private company, a governmental agency, a non-governmental organization, or some other entity with an interest in bioinformatics *and* management. Students must identify a specific person within that outside entity who will be the contact and manager of the internship. Internship credit is never given for work previously done, or for work that would have been done in any case due to an existing employment relationship.

The internship work must produce one or more products such as: a comprehensive report, a departmental presentation, a research project, or an article. Internship placement and product type must be approved by the student's faculty advisor.

Further details and procedures for completing the internship can be found with the faculty advisor.

Code	Title	Credits
Three credits of internship		
BINF 795	Bioinformatics Internship	3
Total Credits 3		

Retroactive Requirements Updates:
Plan of Study:

Additional Program Information

This information is required by the Office of Accreditation and Program Integrity.

Courses offered via distance (if applicable):

What is the primary delivery format for the program? **Both Face-to-Face and Distance**

Does any portion of this program occur off-campus? **No**

Are you working with a vendor / other collaborators to offer your program? **No**

Related Departments

Could this program prepare students for any type of professional licensure, in Virginia or elsewhere? **No**

Are you adding or removing a licensure component? **No**

Additional SCHEV & SACSCOC Information

Are you changing the total number of credits required for this program?

Are you changing the delivery format in any way (e.g adding an online option)?

Are you adding/removing a licensure option which was approved by SCHEV?

Will any portion of this program be offered at an off-campus location?

Are you adding significant new content areas to the program?

Will this program change affect any specialized accreditation?

Green Leaf Program Designation

Is this a Green Leaf program? **No**

Does this program cover material which crosses into another department?

Yes No

Impacted Departments

Department
School of Business
Environmental Science & Policy
Computer Science

Additional Attachments

SCHEV Proposal

**Executive
Summary**

**Reviewer
Comments**

**Additional
Comments**

Is this course required of all students in this degree program?

%wi_required.eshtml%

Key: 422