Course Approval Form

For instructions see:
http://registrar.gmu.edu/facultystaff/catalog-revisions/course/

Action Requested:

- [X] Create new course
- [ ] Inactivate existing course
- [ ] Reinstate inactive course
- [ ] Modify existing course (check all that apply)
  - [ ] Title
  - [ ] Credits
  - [ ] Repeat Status
  - [ ] Grade Type
  - [ ] Prereq/coreq
  - [ ] Schedule Type
  - [ ] Restrictions
  - [ ] Other:

Course Level:

- [ ] Undergraduate
- [X] Graduate

College/School: College of Science
Department: School of Systems Biology
Submitted by: Donald Seto
Ext: 3-8403
Email: dseto@gmu.edu

Subject Code: BINF
Number: 531
(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Effective Term:

- [X] Fall
- [ ] Spring
- [ ] Summer

Year 2015

Title:
Current
Banner (30 characters max w/ spaces)
New: Molecular Cell Biology for Bioinformatics

Fulfills Mason Core Req? (undergrad only)

- [ ] Currently fulfills requirement
- [ ] Submission in progress

Credits: (check one)

- [X] Fixed — or 3
- [ ] Variable — to

Repeat Status: (check one)

- [X] Not Repeatable (NR)
- [ ] Repeatable within degree (RD)
- [ ] Repeatable within term (RT)

Maximum credits allowed: 3

Grade Mode: (check one)

- [X] Regular (A, B, C, etc.)
- [ ] Satisfactory/No Credit
- [ ] Special (A, B C, etc. +IP)

Schedule Type: (check one)
LEC can include LAB or RCT

- [X] Lecture (LEC)
- [ ] Lab (LAB)
- [ ] Recitation (RCT)
- [ ] Internship (INT)
- [ ] Independent Study (IND)
- [ ] Seminar (SEM)
- [ ] Studio (STU)

Prerequisite(s):
Undergraduate 300 and 400 level courses in biochemistry or cell biology, or permission of instructor.

Corequisite(s):

Instructional Mode:

- [ ] 100% face-to-face
- [X] Hybrid: ≤ 50% electronically delivered
- [ ] 100% electronically delivered

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code.

Are there equivalent course(s)?

- [X] Yes
- [ ] No

If yes, please list BINF 631

Catalog Copy for NEW Courses Only (Consult University Catalog for models)

Description (No more than 60 words, use verb phrases and present tense)	**Notes** (List additional information for the course)
Intensive review of biochemistry, molecular biology, and cell biology necessary to begin research in bioinformatics. Topics include protein biochemistry, nucleic acids biochemistry, DNA replication, transcription, and translation, recombinant DNA technology, genomics, molecular structure of genes and chromosomes, and gene expression and control.	

Indicate number of contact hours: Hours of Lecture or Seminar per week: 3 Hours of Lab or Studio: 0
When Offered: (check all that apply) [X] Fall [ ] Summer [ ] Spring

Approval Signatures

Department Approval Date

College/School Approval Date

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Graduate Courses Only

Graduate Council Member

Provost Office

Graduate Council Approval Date

For Registrar Office's Use Only: Banner_____Catalog_____

revised 10/16/14

Course Proposal Submitted to the College of Science Curriculum Committee (COSCC)

Course Number and Title: BINF 531 Molecular Cell Biology for Bioinformatics

Date of Departmental Approval:

- Reason for the New Course: Introductory course offered for the Graduate Certificate in BCB
- Relationship to Existing Programs: We are assigning a new number to a required course for the Certificate program. It will be cross-listed with an existing course in the Master's program.
- Relationship to Existing Courses: Cross-listed with BINF 631
- Semester of Initial Offering: Fall 2015
- Proposed Instructors: Dr. Donald Seto
- Insert Tentative Syllabus Below

Syllabus: BINF 531, Molecular Cell Biology for Bioinformatics

Purpose: Review molecular and cellular biology as foundations for Bioinformatics and Computational Biology. Refine skills for the analysis, understanding and presentation of scientific information.
Instructor: Donald Seto (dseto@gmu.edu)

	Date	Subject	Lodish et al., 6th ed.
1-Lec 1)	Aug 28	Course mechanics; Review the nature of cells	Chapt. 1, pp. 1-30
		Review chemistry and biochemistry	Chapt. 2, pp. 31-61
2-Lec 2)	Sept 04	Proteins: structure, function	Chapt. 3, pp. 63-109
3-Lec 3)	Sept 11	Proteins: methods, biotechnology	Chapt. 3, pp. 63-109
4-Lec 4)	Sept 18	Central Dogma: Txn and Trn	Chapt. 4, pp. 111-139
5-Exam 1)	Sept 25*	EXAM 1 (Lectures 1-3)	
6-Lec 5)	Oct 02	No class	
7-Lec 6)	Oct 09	CD (cont): DNA Replic, Biotech; Viruses	Chapt. 4, pp. 139-164
8-Lec 7)	Oct 16	Genomics; genome-based technology	Chapt 5, pp. 186-212; Chapt. 6, 243-247
9-Lec 8)	Oct 23	Molec genetic techiques and Recomb DNA	Chapt. 5, pp. 165-185
10- Exam 2)	Oct 30*	EXAM 2 (Lectures 5-8)	
11-Lec 9)	Nov 06	Recomb DNA and biotechnology	Chapt. 5, pp. 165-185
12-Lec 10)	Nov 13	Molec struc/func of genes/chromosomes	Chapt. 6, pp. 215-268
13-Lec 11)	Nov 20	Molec struc/func of chromosomes (cont)	Chapt. 6, pp. 215-268
14-	Nov 27	No class	
15-Lec 12)	Dec 04	Txnl control of gene expression	Chapt. 7, pp. 269-322
16-Exam 3)	Dec 11	EXAM 3 ((Lectures 9-12): same place, same time)	

Donald Seto, Professor
School of Systems Biology
College of Science, George Mason University
Manassas, VA 20110
dseto@gmu.edu (703) 993-8403
Occoquan Bldg, Rm 325
Office hours by apptmt, and Thurs 11-4pm
Course Text: Molecular Cell Biology by Lodish, et al, W H Freeman & Co., 6th edition (2007)
Course website under GMU website: "Blackboard"
Grading format: three exams @100pts ea; one written presentations @50pts ea;
three homework @25pts ea => **total =425pts**
Grading structure: 85%A, 70%B, 55%C
[(TBD) extra credit 50pts total within the exams]

=> Papers due Dec. 05; No late papers accepted. @3 pages max
**** Adherence to academic integrity and the GMU Honor Code expected (http://honorcode.gmu.edu).**

If there are other email addresses to use, please inform instructor

Syllabus: BINF 531, Fall 2015: Molecular Cell Biology for Bioinformatics

Purpose: Review molecular and cellular biology as foundations for Bioinformatics and Computational Biology. Refine skills for the analysis, understanding and presentation of scientific information.
Instructor: Donald Seto (dseto@gmu.edu)
Location: Prince William: Bull Run Hall 248, Thursday 4:30pm- 7:10pm

	Date	Subject	Lodish et al., 6th ed.
1-Lec 1)	Aug 28	Course mechanics; Review the nature of cells	Chapt. 1, pp. 1-30
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