

**DEGREE/PROGRAM CHANGE
FORM C
Form Number: C1671**

Fields marked with * are required

Name of Initiator: Alec Reber **Email:** areber@unm.edu **Phone Number:** 505-272-1921 **Date:** 09-24-2015

Associated Forms exist? Initiator's Title
Faculty Contact Administrative Contact
Department Admin Email
Branch Admin Phone

Proposed effective term

Semester Year

Course Information

Select Appropriate Program
Name of New or Existing Program
Select Category Degree Type
Select Action

Exact Title and Requirements as they should appear in the catalog. If there is a change, upload current and proposed requirements.

See current catalog for format within the respective college (upload a doc/pdf file)

[BSGP Cancer Biology Concentration - Catalog.pdf](#)

Does this change affect other departmental program/branch campuses? If yes, indicate below.

Reason(s) for Request (enter text below or upload a doc/pdf file)

The BSGP Steering Committee has reviewed existing curricular offerings and determined that formalizing the current requirements into concentrations (Cancer Biology - C1671, Cardiovascular Physiology - C1673, and Neuroscience - C1672 to date) is in the best interests of the students. In addition to the other Form Cs noted above, the following Form Bs are being submitted: B1717 - moving a regularly taught topics course to it's own number for use in the Neuroscience concentration. B1715 - creating a directed study course for use in the Cancer Biology concentration. Please see the attachments for additional details.

[BSGP Cancer Biology Concentration - Reason.pdf](#)

Upload a document that includes justification for the program, impact on long-range planning, detailed budget analysis and faculty workload implications.(upload a doc/pdf file)

[BSGP Cancer Biology Concentration.pdf](#)

Are you proposing a new undergraduate degree or new undergraduate certificate? If yes, upload the following documents.

Upload a two-page Executive Summary authorized by Associate Provost. (upload a doc/pdf file)

Upload memo from Associate Provost authorizing go-ahead to full proposal. (upload a doc/pdf file)

Biomedical Sciences Graduate Program, Cancer Biology Concentration

Proposed Effective Term

Summer 2016

Proposed Catalog Text

Cancer Biology – 21 credit hours

A new Cancer Biology Concentration is proposed as part of the Biomedical Sciences PhD degree program in order to provide trainees with focused and individualized training in cancer relevant disciplines. There are over 50 graduate faculty members constituting the University of New Mexico Cancer Center – a NIH funded P30 Center with emphases on basic research, clinical translation and community studies. These faculty are extramurally funded and internationally recognized leaders in their fields and their trainees represent the next generation of cancer researchers charged with making cutting edge technological advances in genomics, imaging, molecular and drug discovery. The complexity of such medical advances also requires culturally sensitive community outreach and integration to assure that the dissemination of these advances will be effective and accepted by patients, caregivers and health care providers. In recognition of the need for greater interdisciplinary and transdisciplinary graduate training, the proposed cancer biology concentration has been developed to address new, national graduate training guidelines that require students to articulate individualized training goals and plans for targeted career development. The flexible curriculum will enable students to choose from a menu of courses that offer training relevant to each of the four Cancer Center research programs –1) Cancer Control and Disparities; 2) Cancer Genetics, Epigenetics and Genomics; 3) Translational Cancer Cell Biology and Signaling; 4) Cancer Biotechnology, Drug Discovery and Targeted Delivery. The concentration is designed to offer required and elective courses as well as professional career development that is relevant to all four programs, yet with sufficient flexibility to enable trainees to focus on selected areas of interest. The reorganization of existing courses offered by different departments along with special topics short courses centered on breaking new areas into a single Cancer Biology concentration will both enhance recruitment of the best and the brightest graduate trainees and will in turn provide transdisciplinary, individualized training for students with an interest in cancer-focused research.

Program Requirements

1. Complete first year BSGP core curriculum:

Course No.	Course title	Credit hrs
BIOM 501	Fundamentals for Graduate Research	1
BIOM 506	Special Topics in Biomedical Research (rotations)	3
BIOM 507	Advanced Molecular Biology	4

Biomedical Sciences Graduate Program, Cancer Biology Concentration

BIOM 508	Advanced Cellular Biology	4
BIOM 525	Cell and Molecular Basis of Disease Journal Club (2 semesters, year 1)	4
BIOM 530	Cell and Molecular Basis of Disease Seminar	1
BIOM 555	Problem-Based Research in Bioethics (may be taken in 2 nd year)	1

2. During the second semester of the first year BSGP students are required to take 9 credit hours of selectives. This hour requirement remains unchanged for students pursuing the concentration. To earn a Concentration in Cardiovascular Physiology graduate students are required to take BIOM 515 – Cancer Biology. The remaining 6 credit hours will be determined based on an individualized training plan for each student from the following options.

Course No.	Course title	Credit hrs
	REQUIRED	
BIOM 510	Physiology	3
BIOM 514	Immunobiology	3
BIOM 522	Experimental Methods and Design	3

3. Following successful completion of the Qualifying Exam and remaining in Good Academic Standing (as defined by the BSGP), graduate training will mainly focus on laboratory research supervised by the student's mentor, and supplemented with the following advanced courses.

Course No.	Course title	Credit hrs
	REQUIRED	
BIOM 583 or BIOM 605 or PHRM 593	Journal Club (1 hr/semester)	4
	Select one of the following	
BIOM 505	ST: Biostatistics	2
STAT 527	Advanced Data Analysis	3
	Select at least 6 hours from the following	
BIOM 505 or PHRM 598	ST: with a Cancer Focus	variable
BIOM 510	Physiology	3
BIOM 516	Molecular Genetics and Genomics	3
BIOM 540	University Teacher Training	2
BIOM 616	Molecular Virology	3
BIOL 547	Advanced Techniques in Light Microscopy	4
PH 502	Epidemiologic Methods I	3

Biomedical Sciences Graduate Program, Cancer Biology Concentration

PH 532	Cancer Epidemiology	2
PHRM 536	Introduction to Pharmacogenomics	2
PHRM 576	Molecular and Cellular Pharmacology	1
PHRM 580	General Toxicology	2

Effects on Other Programs or Branch Programs

N/A

Effect on students currently in the program

They will be eligible to graduation with the concentration noted with no change in graduation requirements.

Reason for Request

- The primary objective of the Cancer Biology Concentration is to enhance the ability and competitiveness of BSGP PhD students to pursue careers in cancer biology. While not all BSGP students will choose such careers in cancer biology, such students are also expected to benefit from participating in the professional development workshops that will provide targeted skill building useful for all PhD trainees.
- Students graduate with a transcriptable “*Cancer Biology Concentration*” depicting the specific training achieved under the interdisciplinary program in Biomedical Sciences.
- The Cancer Biology Concentration helps prospective students identify key areas of research at UNM.
- The proposed Cancer Biology Concentration in Biomedical Sciences will address:
 1. New national training requirements for formal, yet individualized training and career development with emphasis on interdisciplinary and transdisciplinary skill-building
 2. Focused training in the area of cancer biology that is in line with the research programs of UNM’s National Cancer Institute designated Cancer Center
 3. Increase competitiveness of our graduate trainees and faculty for national training grant awards that are a measure of all top-ranked programs
 4. Development of local and state networks of scholars with expertise in cancer biology

Impact on Long-range Planning

Training and workforce development guidelines increasingly emphasize individualized training and career development with emphases on interdisciplinary and transdisciplinary skill-building. In addition to the Cancer Biology Concentration, additional concentrations within the Biomedical Sciences graduate program that are aligned with areas of research excellence in the UNM Health Sciences Center (e.g. Neuroscience and Cardiovascular Physiology) will provide graduate trainees with further documentation of expertise in disciplines of their choosing.

Biomedical Sciences Graduate Program, Cancer Biology Concentration

Providing this program to meet these guidelines may have a positive impact on the recruitment of graduate students, which could, in turn, have a positive effect on long-ranging for the department.

Budget Analysis

All but one course are currently being offered. The new course is an independent study style course so will not require additional lab or lecture space nor significant additional library or instructional resources. The establishment of the Cancer Biology Concentration will have no additional impact on the current budget of the Department.

Faculty Load Implications

This program will not change current faculty workload.

Biomedical Sciences Graduate Program, Cancer Biology Concentration

Supplementary Information – Projected Enrollment

We anticipate an average of ~one third of the BSGP students being at various stages of progress toward the completion of the cancer biology concentration, and ~5 students/year completing all of the requirements once the program is fully established.

	2015-2016	2016-2017	2017-2018	2018-2019
Graduates	0	0	2*	2*
Total Enrollees	9**	14	19	24

*graduates in 2017-2019 represent current students, beginning in 2019-2020 new students recruited to the cancer biology track will be expected to increase numbers of graduates to ~5/yr

**assumes incoming (5) and current students (4) in second and third years of their degree programs

Biomedical Sciences Graduate Program, Cancer Biology Concentration

Reason for Request

- The primary objective of the Cancer Biology Concentration is to enhance the ability and competitiveness of BSGP PhD students to pursue careers in cancer biology. While not all BSGP students will choose such careers in cancer biology, such students are also expected to benefit from participating in the professional development workshops that will provide targeted skill building useful for all PhD trainees.
- Students graduate with a transcriptable “*Cancer Biology Concentration*” depicting the specific training achieved under the interdisciplinary program in Biomedical Sciences.
- The Cancer Biology Concentration helps prospective students identify key areas of research at UNM.
- The proposed Cancer Biology Concentration in Biomedical Sciences will address:
 1. New national training requirements for formal, yet individualized training and career development with emphasis on interdisciplinary and transdisciplinary skill-building
 2. Focused training in the area of cancer biology that is in line with the research programs of UNM’s National Cancer Institute designated Cancer Center
 3. Increase competitiveness of our graduate trainees and faculty for national training grant awards that are a measure of all top-ranked programs
 4. Development of local and state networks of scholars with expertise in cancer biology

Biomedical Sciences Graduate Program, Cancer Biology Concentration

Proposed Effective Term

Summer 2016

Proposed Catalog Text

Cancer Biology – 21 credit hours

A new Cancer Biology Concentration is proposed as part of the Biomedical Sciences PhD degree program in order to provide trainees with focused and individualized training in cancer relevant disciplines. There are over 50 graduate faculty members constituting the University of New Mexico Cancer Center – a NIH funded P30 Center with emphases on basic research, clinical translation and community studies. These faculty are extramurally funded and internationally recognized leaders in their fields and their trainees represent the next generation of cancer researchers charged with making cutting edge technological advances in genomics, imaging, molecular and drug discovery. The complexity of such medical advances also requires culturally sensitive community outreach and integration to assure that the dissemination of these advances will be effective and accepted by patients, caregivers and health care providers. In recognition of the need for greater interdisciplinary and transdisciplinary graduate training, the proposed cancer biology concentration has been developed to address new, national graduate training guidelines that require students to articulate individualized training goals and plans for targeted career development. The flexible curriculum will enable students to choose from a menu of courses that offer training relevant to each of the four Cancer Center research programs –1) Cancer Control and Disparities; 2) Cancer Genetics, Epigenetics and Genomics; 3) Translational Cancer Cell Biology and Signaling; 4) Cancer Biotechnology, Drug Discovery and Targeted Delivery. The concentration is designed to offer required and elective courses as well as professional career development that is relevant to all four programs, yet with sufficient flexibility to enable trainees to focus on selected areas of interest. The reorganization of existing courses offered by different departments along with special topics short courses centered on breaking new areas into a single Cancer Biology concentration will both enhance recruitment of the best and the brightest graduate trainees and will in turn provide transdisciplinary, individualized training for students with an interest in cancer-focused research.

Program Requirements

1. Complete first year BSGP core curriculum:

Course No.	Course title	Credit hrs
BIOM 501	Fundamentals for Graduate Research	1
BIOM 506	Special Topics in Biomedical Research (rotations)	3
BIOM 507	Advanced Molecular Biology	4

Biomedical Sciences Graduate Program, Cancer Biology Concentration

BIOM 508	Advanced Cellular Biology	4
BIOM 525	Cell and Molecular Basis of Disease Journal Club (2 semesters, year 1)	4
BIOM 530	Cell and Molecular Basis of Disease Seminar	1
BIOM 555	Problem-Based Research in Bioethics (may be taken in 2 nd year)	1

2. During the second semester of the first year BSGP students are required to take 9 credit hours of electives. This hour requirement remains unchanged for students pursuing the concentration. To earn a Concentration in Cardiovascular Physiology graduate students are required to take BIOM 515 – Cancer Biology. The remaining 6 credit hours will be determined based on an individualized training plan for each student from the following options.

Course No.	Course title	Credit hrs
	REQUIRED	
BIOM 510	Physiology	3
BIOM 514	Immunobiology	3
BIOM 522	Experimental Methods and Design	3

3. Following successful completion of the Qualifying Exam and remaining in Good Academic Standing (as defined by the BSGP), graduate training will mainly focus on laboratory research supervised by the student’s mentor, and supplemented with the following advanced courses.

Course No.	Course title	Credit hrs
	REQUIRED	
BIOM 583 or BIOM 605 or PHRM 593	Journal Club (1 hr/semester)	4
	Select one of the following	
BIOM 505	ST: Biostatistics	2
STAT 527	Advanced Data Analysis	3
	Select at least 6 hours from the following	
BIOM 505 or PHRM 598	ST: with a Cancer Focus	variable
BIOM 510	Physiology	3
BIOM 516	Molecular Genetics and Genomics	3
BIOM 540	University Teacher Training	2
BIOM 616	Molecular Virology	3
BIOL 547	Advanced Techniques in Light Microscopy	4
PH 502	Epidemiologic Methods I	3

Biomedical Sciences Graduate Program, Cancer Biology Concentration

PH 532	Cancer Epidemiology	2
PHRM 536	Introduction to Pharmacogenomics	2
PHRM 576	Molecular and Cellular Pharmacology	1
PHRM 580	General Toxicology	2