UNIVERSITY OF WASHINGTON

OFFICE OF THE PRESIDENT

October 27, 2011

Dean Ana Mari Cauce
College of Arts and Sciences
Box 353765

Dear Ana Mari:

Based upon the recommendation of its Subcommittee on Admissions and Programs, the Faculty Council on Academic Standards has recommended approval of the revised admission and program requirements for the Bachelor of Science degree in Microbiology. A copy of the changes is attached.

I am writing to inform you that the Department of Microbiology is authorized to specify these requirements beginning autumn quarter ~~2011~~ 2012

The new requirements should be incorporated in printed statements and in individual department websites as soon as possible. The *General Catalog* website will be updated accordingly by the Registrar's Office.

Sincerely yours,

Michael K. Young
President

Enclosures
cc: Ms. Sarah Mears (with enclosure)
Mr. Robert Corbett (with enclosure)
Dr. Deborah H. Wiegand (with enclosure)
Ms. Virjean Edwards (with enclosure MICROM-20110502)

301 Gerberding Hall • Box 351230 • Seattle, Washington 98195-1230 • 206-543-5010 • FAX: 206-616-1784

UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE
DEPARTMENT OF MICROBIOLOGY

James J. Champoux, Ph.D.
Professor and Chair
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Health Sciences Center, Room K-357B
University of Washington School of Medicine
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Seattle, WA 98195-7735
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champoux@u.washington.edu

November 3, 2011

Jennifer A. Payne
Curriculum Coordinator
University of Washington
Box 355850
Seattle, WA 98195-5850

Dear Ms. Payne:

We are requesting postponement of the implementation of the revised admission and program requirements for the Bachelor of Science degree in Microbiology. These revised requirements have been approved and we are authorized to specify them beginning autumn quarter 2011 (see attached). We originally requested this implementation date when we expected approval to occur during the academic year 2010-2011. However, we received this approval only on October 27 of this year. Therefore, it is impractical for us to implement the new requirements as of autumn quarter 2011. We are already in the midst of autumn quarter, and this week students are beginning to register for winter quarter. We would still have to incorporate the new requirements in printed statements and in the department web site, as well as communicate them to the students to whom they apply.

For these reasons, we are requesting that the new requirements be delayed until autumn quarter 2012. This will give the Department, as well as the Registrars and Graduation Offices, sufficient time to establish the necessary statements and procedures. In addition, this postponement will allow us to apply these changes starting at a time when the greatest number of students first enter the major.

Sincerely,

James J. Champoux, PhD
Chair, Department of Microbiology
Box 357735

Ana Mari Cauce
Dean, College of Arts and Sciences
Box 353765

✓5-5-11 JS

JUN 0 2 2011

UNIVERSITY OF WASHINGTON

CREATING AND CHANGING UNDERGRADUATE ACADEMIC PROGRAMS

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After college/school/campus review, send a signed original and 8 copies to the Curriculum Office/FCAS, Box 355850.
For information about when and how to use this form: http://depts.washington.edu/uwcr/1503instructions.pdf

College/Campus Arts and Sciences | **Department/Unit** Microbiology | **Date** 05-02-11

New Programs

- ☐ Leading to a Bachelor of _____ in _____ degree.
- ☐ Leading to a Bachelor of _____ degree with a major in _____.
- ☐ Leading to a _____ Option within the existing major in _____.
- ☐ Leading to a minor in _____

Changes to Existing Programs

- ☐ New Admission Requirements for the Major in _____ within the Bachelor of _____.
- ☒ Revised Admission Requirements for the Major in Microbiology within the Bachelor of Science.
- ☒ Revised Program Requirements for the Major in Microbiology within the Bachelor of Science.
- ☐ Revised Requirements for the Option in _____ within the major in _____.
- ☐ Revised Requirements for the Minor in _____.

Other Changes

- ☐ Change name of program from _____ to _____.
- ☐ New or Revised Continuation Policy for _____.
- ☐ Eliminate program in _____.

Proposed Effective Date: **Quarter:** ☒ Autumn ☐ Winter ☐ Spring ☐ Summer **Year: 20** 11

Contact Person: Sarah Mears	Phone: 3-2572	Email: mears@u.washington.edu	Box: 357242

EXPLANATION OF AND RATIONALE FOR PROPOSED CHANGE

For new program, please include any relevant supporting documentation such as student learning outcomes, projected enrollments, letters of support and departmental handouts. (*Use additional pages if necessary*).

Admission: Recommend adding a minimum grade of 2.3 in Biol 200. We have quite a few entering majors who fail to obtain our minimum grade of 1.8 in MICROM 410, our first course for majors. Biol 200 seems to be the best predictor of success in the Microbiology major. Recommend that OChem 238 and 239 be dropped.

Graduation Requirements: We would like to restructure our current graduation requirements. Microbiology majors should receive a broad education in the field, but many of our majors have specific interests and would benefit from more leeway to delve more deeply into subjects that interest them. With these thoughts in mind, we looked our at requirements and compared them to the recommendations of the American Society of Microbiologists (ASM), and the course requirements of undergraduate microbiology programs at peer institutions (Table 1). Many of these programs have course offering approaching our comprehensiveness, but few of them have course requirements as extensive as ours. Our requirements exceed by far those recommended by ASM, and those at most of our peer institutions. Students in our program are left with only 4-5 elective credits. We therefore believe that our program can be improved by offering students increased flexibility while still ensuring a broad exposure to the field. We recommend that we retain a set of core microbiology requirements, and restructure our remaining courses as distribution requirements (See attached). We will suggest tracks to our students, i.e. courses of study appropriate to specific interests within the field of Microbiology. Each track would provide an example of a course of study that consists of core courses, distribution, and electives that fulfill graduation requirements. Examples of tracks are attached.

OTHER DEPARTMENTS AFFECTED

List all departments/units/ or co-accredited programs affected by your new program or changes to your existing program and acquire the signature of the chair/director of each department/unit listed. Attach additional page(s) if necessary. *See online instructions.

Department/Unit:	Chair/Program Director:	Date:
Department/Unit:	Chair/Program Director	Date:

CATALOG COPY

Catalog Copy as currently written. Include only sections/paragraphs that would be changed if your request is approved. Please cross out or otherwise highlight any deletions.

Department Admission Requirements: Completion of the following prerequisite courses: BIOL 180, BIOL 200, BIOL 220; CHEM 142, CHEM 152, CHEM 162; CHEM 223, CHEM 224, or CHEM 237, CHEM 238, CHEM 239. Delete highlighted

Major Requirements: Minimum 94 delete (will be 90) credits (including microbiology courses) in the biological, physical, and mathematical sciences, as follows:

Organic chemistry: CHEM 223, CHEM 224 (8 credits) (or CHEM 237, CHEM 238, CHEM 239; or CHEM 335, CHEM 336, CHEM 337) delete highlighted

MICROM 402, MICROM 410, MICROM 411, MICROM 412, MICROM 431, MICROM 441, MICROM 442, MICROM 443, MICROM 496, and MICROM 445 or MICROM 450 (31 or 32 credits) Highlighted courses will become distribution.

PROPOSED CATALOG COPY

Reflecting requested changes (Include exact wording as you wish it to be shown in the printed catalog. Please underline or otherwise highlight any additions. If needed, attach a separate, expanded version of the changes that might appear in department publications). **Please note:** all copy will be edited to reflect uniform style in the General Catalog.

Department Admission: Completion of the following prerequisite courses: BIOL 180, BIOL 200 (2.3 Grade required), BIOL 220; CHEM 142, CHEM 152, CHEM 162; CHEM 223, or CHEM 237. Cumulative GPA of 2.0 overall, and a cumulative GPA of 2.25 in the prerequisite biology and chemistry courses listed above.

Core Courses: MICROM 410 Fundamentals of Microbiology (3 credits), MICROM 402 General Microbiology Lab (3 credits), MICROM 496 Library Research Paper (2 credits).

Distribution: 15 credits from the following courses, and these must include at least one course from each of the four distribution groups. Two of the courses must contain a laboratory component.
1) Medical Microbiology: Immun 441 Immunology (4 credits), MICROM 442 Medical Bacteriology (3 credits), MICROM 443 Medical Microbiology Lab (3 credits), MICROM 444 Medical Mycology and Parasitology, includes lab (4 credits)
2) Virology: MICROM 445 Medical Virology (2 credits), MICROM 450 Molecular Biology of Viruses (3 credits)
3) Diversity and Ecology: MICROM 412 Prokaryotic Diversity (3 credits), MICROM 435 Microbial Ecology (3 credits)
4) Genetics and Molecular Biology: MICROM 411 Gene Action, includes lab (5 credits), MICROM 431 Prokaryotic Recombinant DNA Techniques Lab (3 credits) and either GENOME 361 Fundamentals of Genetics and Genomics (3 credits) or GENOME 371 Introductory Genetics (5 credits)

Electives: 13 credits from our list of approved electives (see attached). Approved electives may include any of the above courses not taken as a distribution requirement.

APPROVALS

Chair/Program Director:	Date: 5/2/11
College/School/Campus Curriculum Committee:	Date: 5/26/11
Dean/Vice Chancellor:	Date: 5/26/11
Faculty Council on Academic Standards/ General Faculty Organization/Faculty Assembly Chair: John Schaufelberger	Date: 10/25/11

POST TRI-CAMPUS APPROVAL (when needed)

Faculty Council on Academic Standards/ General Faculty Organization/Faculty Assembly Chair:	Date:

Current:

Bachelor of Science

Suggested First- and Second-Year Courses: PHYS 114, PHYS 115, PHYS 116, or PHYS 121, PHYS 122, PHYS 123; one of the following: MATH 112, MATH 124, MATH 144, Q SCI 381, or STAT 311.

MICROM 410, the first microbiology course for majors, is taken after completion of BIOL 200 and organic chemistry (CHEM 223 or CHEM 237). To graduate in four years, a student must complete introductory biology and organic chemistry before autumn quarter of the junior year.

MICROM 101, MICROM, 301, and MICROM 302, offered to non-majors, serve as introductory courses, but cannot be used to fulfill graduation requirements for a major in microbiology. MICROM 301 is a prerequisite for students applying to nursing, physical therapy, or dental school.

Department Admission Requirements

1. A minimum of 75 credits applicable to graduation, with a minimum cumulative GPA of 2.25 in prerequisite chemistry and biology courses.
2. Completion of the following prerequisite courses: BIOL 180, BIOL 200, BIOL 220; CHEM 142, CHEM 152, CHEM 162; CHEM 223, CHEM 224, or CHEM 237, ~~CHEM 238, CHEM 239.~~

Major Requirements

Minimum ~~94~~ credits (including microbiology courses) in the biological, physical, and mathematical sciences, as follows:

1. BIOL 180, BIOL 200, BIOL 220, or equivalent (15 credits/one year)
2. Inorganic chemistry: CHEM 142, CHEM 152, CHEM 162 (16 credits) (or CHEM 145, CHEM 155); Organic chemistry: CHEM 223, ~~CHEM 224 (8 credits)~~ (or CHEM 237, ~~CHEM 238, CHEM 239~~; or CHEM 335~~, CHEM 336, CHEM 337~~)
3. ~~MICROM 402, MICROM 410, MICROM 411, MICROM 412, MICROM 431, MICROM 441, MICROM 442, MICROM 443, MICROM 496, and MICROM 445 or MICROM 450 (31 or 32 credits)~~
4. ~~Approved microbiology electives (5 credits, not to include MICROM 101, MICROM 301, MICROM 302)~~
5. PHYS 114, PHYS 115 (8 credits) (or PHYS 121, PHYS 122) (PHYS 116 or PHYS 123 recommended)

6. Either MATH 112, MATH 124, MATH 127, MATH 144, Q SCI 381, or STAT 311 (5 credits)
7. BIOC 405, BIOC 406 (6 credits) (or BIOC 440, BIOC 441, BIOC 442)
8. For all required and elective microbiology courses used toward graduation, a minimum 2.25 cumulative GPA and a minimum grade of 1.8 in each course.
9. Transfer students must complete at least 20 of the required and elective microbiology credits at the UW.

Proposed:

Bachelor of Science

Suggested First- and Second-Year Courses: PHYS 114, PHYS 115, PHYS 116, or PHYS 121, PHYS 122, PHYS 123; one of the following: MATH 112, MATH 124, MATH 144, Q SCI 381, or STAT 311.

MICROM 410, the first microbiology course for majors, is taken after completion of BIOL 200 and organic chemistry (CHEM 223 or CHEM 237). To graduate in four years, a student must complete introductory biology and organic chemistry before autumn quarter of the junior year.

MICROM 101, MICROM, 301, and MICROM 302, offered to non-majors, serve as introductory courses, but cannot be used to fulfill graduation requirements for a major in microbiology. MICROM 301 is a prerequisite for students applying to nursing, physical therapy, or dental school.

Department Admission Requirements

1. A minimum of 75 credits applicable to graduation, with a minimum **cumulative GPA of 2.00 overall**, and a minimum cumulative GPA of 2.25 in prerequisite chemistry and biology courses.
2. Completion of the following prerequisite courses: BIOL 180, BIOL 200, BIOL 220; CHEM 142, CHEM 152, CHEM 162; CHEM 223 or CHEM 237.

Major Requirements

Minimum **90** credits (including microbiology courses) in the biological, physical, and mathematical sciences, as follows:

1. BIOL 180, BIOL 200, BIOL 220, or equivalent (15 credits/one year)
2. Inorganic chemistry: CHEM 142, CHEM 152, CHEM 162 (16 credits) (or CHEM 145, CHEM 155); Organic chemistry: CHEM 223, CHEM 237, or CHEM 335
3. **Core Courses (8 credits): MICROM 402; MICROM 410; MICROM 496**
4. **Distribution: 15 credits from the following to include at least once course in each distribution group and a minimum of two courses with a laboratory component.**
    1. **Medical Microbiology: IMMUN 441, MICROM 442, MICROM 443, or MICROM 444.**
    2. **Virology: MICROM 445 or MICROM 450.**
    3. **Diversity and Ecology: MICROM 412 or MICROM 435**

4. **Genetics and Molecular Biology: MICROM 411, MICROM 431, and GENOME 361 or GENOME 371.**

5. **13 credits of approved electives, see advisor for approved list. Approved electives may include any of the above courses not taken as a distribution requirement.**

6. PHYS 114, PHYS 115 (8 credits) (or PHYS 121, PHYS 122) (PHYS 116 or PHYS 123 recommended)

7. Either MATH 112, MATH 124, ~~MATH 127~~, MATH 144, Q SCI 381, or STAT 311 (5 credits)

8. BIOC 405, BIOC 406 (6 credits) (or BIOC 440, BIOC 441, BIOC 442)

9. For all required and elective microbiology courses used toward graduation, a minimum 2.25 cumulative GPA and a minimum grade of 1.8 in each course.

10. Transfer students must complete at least 20 of the required and elective microbiology credits at the UW.

Electives

The committee reviewed our list of approved electives and sought additional courses that could be added. Below is an updated list.

Microbiology

(new) MICROM 413 Special Topics in Microbiology (1 [up to three credits of Microm 413 may be counted])
(new) MICROM 482 Peer Teaching Assistants in Microbiology (1-5, max. 10)
MICROM 490 Aquatic Microbiology (3/5)
MICROM 495 Honors Undergraduate Research
MICROM 499 Undergraduate Laboratory Research
MICROM 555 Advanced Clinical Microbiology (2.5)

Bioethics and Humanities

B H 401 History of Modern Medicine (3)

Biology

BIOL 401 Advanced Cell Biology (3)
(new) BIOL 405 Cellular and Molecular Biology of Human Disease (3)
BIOL 440 General Mycology (5)
BIOL 446 Biology of Algae (5)
(new) BIOL 481 Experimental Evolutionary Ecology (5)

Chemical Engineering

(new) CHEM E 467 Biochemical Engineering (3)

Civil and Environmental Engineering

CEE 462 Applied Limnology: Ecological Effects of Wastewaters (3)
CEE 482 Wastewater Treatment and Reuse (3)
(new) CEE 484 Decentralized and On-Site Wastewater Management and Reuse (3)
CEE 540 Microbial Process Fundamentals (3)

Conjoint courses

(new) CONJ 550 P-Clinical Infectious Diseases (3)

Environmental and Occupational Health Sciences

ENV H 440 Water, Wastewater and Health (3)
ENV H 441 Food Protection (3)
ENV H 442 Vector Control (3)
(new) ENV H 451 Ecology of Environmentally Transmitted Microbiological Hazards (3)
(new) ENV H 452 Detection and Control of Environmentally Transmitted Microbiological Hazards (3)

Environmental Science and Resource Management

(new) ESRM 409 Soil Ecology (5)
(new) CRF 522 Plant-Microbe Interactions (1)

Epidemiology

EPI 420 Introduction to Epidemiology (3)

Fisheries
(new) FISH 404 Diseases of Aquatic Animals (5)

Genome Sciences
(new) GENOME 361 Fundamentals of Genetics and Genomics (3)
GENOME 371 Introductory Genetics (5)
GENOME 372 Genomics and Proteomics (5)
(new) GENOME 373 Genomic Informatics (4)

Global Health
(new) G H 201 Newly Emerging Diseases in Public Health (2)
(new) G H 401 Introduction to Global Health (1)
(new) G H 402 Multidisciplinary Perspectives in Global Health (1)
(new) G H 415 Global Health Challenges (4)

Medicinal Chemistry
(new) MEDCH 561 P-Immunizing and Antimicrobial Agents (4)

Oceanography
(new) Ocean 430 Biological Oceanography
(new) Ocean 431 Special Topics in Biological Oceanography (3)
(new) Ocean 454 Hydrothermal Vents

Pathobiology
(new) PABIO 536 Bioinformatics and Gene Sequence Analysis (3)
(new) PABIO 540 Antibiotic Resistance Mechanisms and Their Impact on Public Health (3)
(new) PABIO 548 Molecular and Cellular Parasitology (3)
PABIO 550 Diseases of Public Health Importance and Strategies for their Control (3)
PABIO 551 Biochemistry and Genetics of Pathogens and Their Hosts (4)

Examples of tracks

Medical Microbiology

Core Courses

Microm 410 Fundamentals of Microbiology (3 credits)
Microm 402 General Microbiology **Lab** (3 credits)
Microm 496 Library research (2 credits)

Distribution Requirements

Immun 441 Immunology (4 credits)
Microm 443 Medical Microbiology **Lab** (3 credits)
Microm 445 Medical Virology (3 credits)
Microm 435 Microbial Ecology (3 credits)
Microm 411 Gene Action. Includes **lab** (5 credits)

Electives

Microm 442 Medical Bacteriology (3 credits)
Microm 444 Medical Mycology and Parasitology. Includes **lab** (4 credits)
EPI 420 Introduction to Epidemiology (3)

Diversity and Ecology

Core Courses

Microm 410 Fundamentals of Microbiology (3 credits)
Microm 402 General Microbiology **Lab** (3 credits)
Microm 496 Library research (2 credits)

Distribution requirements

Microm 444 Medical Mycology and Parasitology. Includes **lab** (4 credits)
Microm 450 Molecular Biology of Viruses (3 credits)
Microm 412 Prokaryotic Diversity (3 credits)
Microm 411 Gene Action. Includes **lab** (5 credits)

Electives

Microm 435 Microbial Ecology (3 credits)
MICROM 490 Aquatic Microbiology (3)
BIOL 440 General Mycology (5)
or
BIOL 446 Biology of Algae (5)
ESRM 490H Adapting to Challenging Environments (3)

Genetics and Molecular Biology

Core Courses

Microm 410 Fundamentals of Microbiology (3 credits)
Microm 402 General Microbiology **Lab** (3 credits)
Microm 496 Library research (2 credits)

Distribution requirements

Microm 442 Medical Bacteriology (3 credits)
Microm 450 Molecular Biology of Viruses (3 credits)
Microm 412 Prokaryotic Diversity (3 credits)
Microm 411 Gene Action. Includes **lab** (5 credits)
Microm 431 Prokaryotic Recombinant DNA Techniques **lab** (3 credits)

Electives

BIOL 401 Advanced Cell Biology (3)
GENOME 373 Genomic Informatics (4)
BIOEN 487 Bioengineering and Nanotechnology (4)