

CNAS College Council February 2025

Committee College of Natural and Applied Sciences College Council

Notes

Total Proposals 9

BIO - 519 - Metagenomics

2025-2026 UG Course New Form

General Catalog Information

****Instructions****

Complete Proposal Form

Complete all required fields, marked with an *.
Only one academic unit may be selected.
Complete the *Acknowledgement* section.

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Originators must check course number availability prior to submission using this resource: [Course Number Availability](#).

Parallel UG/GR courses must match exactly, except for prerequisites.

Identical courses must match exactly, including prerequisites.

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If a course is **not identical or parallel to another**, but students may not earn credit for a different course as well, the “*Cannot receive credit for both XXXxxx and XXXxxx*” must be added to the course description. *Example: LAW 335 and 532.*

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For information regarding Faculty Senate bylaws, email facultysenate@missouristate.edu.

Academic Unit:*

Department of Biology

Course Code:*

BIO

Course Number:* 519

Course Title:* Metagenomics

Prerequisite:

BIO235 (genetics) or BMS 230 (human genetics) and BIO212 (elements of microbiology) or BIO312 (microbiology) or BMS 317 (medical microbiology) or BIO320 (cellular and molecular biology) or BMS 521 (molecular cell biology)

Corequisite:

Recommended Prerequisite:

BIO540 (application of molecular marker) or BIO640 (application of molecular marker) or equivalent

Credit Hours:* 3

Type
(Lecture/Lab/Other):* Lecture
 Lab
 Both
 Other

Lecture Contact Hours: 2

Lab Contact Hours: 2

If this course may be repeated for additional credit, enter the repeatable limit.

This course CANNOT be graded as Pass/Not Pass. * Yes Not Applicable

Is this course graded Pass/Not Pass ONLY? * Yes Not Applicable

Is there a graduate parallel course to this one? BIO 619

Is this course identical to another undergraduate course? No

Check all periodicity that applies. * Fall Fall Even Fall Odd Spring Spring Even Spring Odd Summer Demand

Course Description:* Metagenomics course emphasizes advanced DNA sequencing and bioinformatics tools. The laboratory component focuses on hands-on techniques in microbial genomics, including amplicon sequencing, functional gene analysis, whole-genome/metagenome sequencing, and metatranscriptomics, with applications in environmental, clinical, agricultural, and industrial contexts.

Students cannot receive credit for both BIO 519 and BIO 619.

Rationale

Purpose of Course:*

The Metagenomics course provides students with a comprehensive understanding of advanced DNA sequencing technologies and bioinformatics tools for analyzing microbial communities. It emphasizes the integration of theoretical knowledge with practical, hands-on laboratory techniques, allowing students to explore various aspects of metagenomics, including amplicon sequencing, functional gene analysis, whole-genome and metagenome sequencing, and metatranscriptomics. The course also highlights real-world applications in fields such as environmental monitoring, clinical microbiology, agriculture, host-microbe interactions, and industrial biotechnology. Will prepare students to pursue careers in genomics, microbiology, and bioinformatics. This course will be included in the list of approved courses for biology majors seeking an emphasis in microbiology and biotechnology.

Enrollment Expectations

What is the anticipated source of students for this course?*

Biology, agriculture, chemistry, BMS and other health-related majors may be interested in taking this course.

Anticipated Average Enrollment per class section:* 24

Maximum Enrollment Limit per class section:* 24

Anticipated Average Enrollment per semester: * 24

Maximum Enrollment Limit per semester:* 24

Anticipated Average Enrollment per year:* 24

Maximum Enrollment Limit per year:* 24

Resource Needs

Will this new course require additional library holdings?* Yes No

Will this new course require additional computer resources?* Yes No

Will this new course require additional or remodeled facilities?* Yes No

Will this new course require additional equipment or supplies?* Yes No

Will this new course require, additional travel funds?* Yes No

Will there be any additional costs associated with this course?* Yes No

associate with this course? No

If yes, to any of the above, detail specific resource needs:

Faculty Impact

Faculty Load Assignment (equated hours):*

4

Additional faculty needed; general vs. specialized* Yes No

Additional faculty needed; regular vs. per-course* Yes No

If additional faculty are not required, how will faculty be made available to teach this course?

Previously, I have taught this course as a BIO 597 special topics course.

List names of current faculty qualified and available to teach this course:*

Babur Mirza

If from within the department, will students be taking this course in addition to or in place of other courses?*

Yes No

If from outside the department, which courses in other departments would most likely be affected?*

This course is not currently being taught in another department that I am aware of.

Other comments:

Inclusion of this course as a class offering for biology, agriculture, biomedical, and healthcare students will be beneficial for their preparation for advanced degree programs. In Biology, it will provide another course for the general biology degree program and microbiology and biotechnology emphasis areas.

Students cannot receive credit for both BIO 519 and BIO 619.

Acknowledgements and Attachments

What is the date that this new course was approved by departmental faculty?* 09/06/2024

ATTACHMENT INSTRUCTION

No attachments are required but may be uploaded if desired by navigating to the right side menu and clicking "*Files*".

Note: A syllabus is not required.

Acknowledgement Statement* I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Disposition Information

Effective Term Fall
 Spring
 Summer

Implementation Notes

Degree Audit Notes

Grade Mode for Catalog Standard
 Pass/Not Pass

Schedule Type for Catalog

Course Type:

BIO - 549 - Ecotoxicology

2025-2026 UG Course New Form

General Catalog Information

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If a course is **not identical or parallel to another**, but students may not earn credit for a different course as well, the *“Cannot receive credit for both XXXxxx and XXXxxx”* must be added to the course description. *Example: LAW 335 and 532.*

If a new course should be added to a program in the catalog (as a requirement or an elective, etc.), a program proposal must also be submitted.

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Academic Unit:*

Department of Biology

Course Code:*

BIO

Course Number:* 549

Course Title:* Ecotoxicology

Prerequisite: BIO 122

Corequisite:

Recommended Prerequisite:

Credit Hours:* 3

Type
(Lecture/Lab/Other):* Lecture
 Lab
 Both
 Other

Lecture Contact Hours: 3

Lab Contact Hours:

If this course may be repeated for additional credit, enter the repeatable limit.

This course CANNOT be graded as Pass/Not Pass. * Yes Not Applicable

Is this course graded Pass/Not Pass ONLY? * Yes Not Applicable

Is there a graduate parallel course to this one? BIO 649

Is this course identical to another undergraduate course? No

Check all periodicity that applies. * Fall Fall Even Fall Odd Spring Spring Even Spring Odd Summer Demand

Course Description:* The study of ecological impacts of pollutants. Discussion of the major classes of pollutants, their fate in the environment, and impacts on organisms, populations, and communities. Key primary literature and how scientists use observation, experimentation, and models to answer questions regarding ecotoxicology are also discussed. *May be taught concurrently with BIO 649. Students cannot receive credit for both BIO 549 and BIO 649.*

Rationale

Purpose of Course:* This course provides an additional undergraduate level course for students interested in ecology and toxicology. We live in a world where we are producing and using chemicals faster than we know their potential to harm us and our environment. The purpose of this course is to make students aware of the harmful impacts of chemicals on ecosystems, including new and/or emerging pollutants. This includes how these chemicals can impact individuals, as well as populations.

Enrollment Expectations

What is the anticipated source of students for this course?*

Students from the biology undergraduate and graduate program, as well as students from the College of Agriculture.

Anticipated Average Enrollment per class section:* 14

Maximum Enrollment Limit per class section:* 20

Anticipated Average Enrollment per semester: * 14

Maximum Enrollment Limit per semester:* 20

Anticipated Average Enrollment per year:* 14

Maximum Enrollment Limit per year:* 20

Resource Needs

Will this new course require additional library holdings?* Yes No

Will this new course require additional computer resources?* Yes No

Will this new course require additional or remodeled facilities?* Yes No

Will this new course require additional equipment or supplies?* Yes No

Will this new course require, additional travel funds?* Yes No

Will there be any additional costs associate with this course?* Yes No

If yes, to any of the above, detail specific resource needs:

Faculty Impact

Faculty Load Assignment (equated hours):* 3

Additional faculty needed; general vs. specialized* Yes No

Additional faculty needed; regular vs. per-course* Yes No

If additional faculty are not required, how will faculty be made available to teach this course?

I have been teaching a graduate level course in Ecotoxicology as a BIO 597/697 special topics course since 2017. I currently teach this course in even years in the spring semester. I last taught this course in spring 2024.

List names of current faculty qualified and available to teach this course:*

La Toya Kissoon-Charles

If from within the department, will students be taking this course in addition to or in place of other courses?*

Yes
 No

If from outside the department, which courses in other departments would most likely be affected?*

There is no other course like this course that is offered outside of the biology department.

Other comments:

I have been teaching this course as a special topics course (BIO 597/697) in the spring since 2017. The course has been well received by both undergraduate and graduate students. Having the course listed in the course catalog will make it visible to more students.

I have attached the Spring 2024 syllabus for the BIO 597/697 course.

Acknowledgements and Attachments

What is the date that this new course was approved by departmental faculty?*

09/06/2024

ATTACHMENT INSTRUCTION

No attachments are required but may be uploaded if desired by navigating to the right side menu and clicking "*Files*".

Note: A syllabus is not required.

Acknowledgement Statement*

I acknowledge that all areas of this proposal have been completed as required

required.

System Administrator Only

Disposition Information

- Effective Term** Fall
 Spring
 Summer

Implementation Notes

Degree Audit Notes

- Grade Mode for Catalog** Standard
 Pass/Not Pass

Schedule Type for Catalog

Course Type:

BIO - 562 - Freshwater Ecosystems

2025-2026 UG Course Change Form

General Catalog Information

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Complete all required fields, marked with an *.

Do not change the academic unit field.

Edit fields that need update by clicking on the text in the field. If a required field does not need to change, no need to update.

Generate the **Impact Report** by clicking *Run Impact Report* at the top of the page, select the UG catalog map, and copy the results into the space provided on the form. **This is required.** Complete the *Acknowledgement* section.

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If a course is **not identical or parallel to another**, but students may not earn credit for a different course as well, the “*Cannot receive credit for both XXXxxx and XXXxxx*” must be added to the course description. *Example: LAW 335 and 532.*

Courses listed in prerequisites, corequisites, recommended prerequisites, and descriptions may be catalog links shown in green. Catalog links will be updated by the OOR during implementation.

Course changes that affect program information in the catalog will not be implemented without a corresponding program change form.

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Academic Unit:*

Department of Biology

Course Code:*

BIO

Course Number: * 562

Course Title: * Freshwater Ecosystems

Prerequisite: [BIO 367](#) and [BIO 368](#).

Corequisite:

Recommended Prerequisite: [CHM 171](#) or higher.

Credit Hours: * 4

Lecture Contact Hours: 3

Lab Contact Hours: 3

If changing the repeatable hours or adding repeatable hours, enter the repeatable limit desired.

Type
(Lecture/Lab/Other)*

- Lecture
- Lab
- Both
- Other

Grade Mode* Letter Grades (Standard)

- Pass Not Pass ONLY
- CANNOT Pass Not Pass

Check all periodicity
that applies.*

- Fall
- Fall Even
- Fall Odd
- Spring
- Spring Even
- Spring Odd
- Summer
- Demand

Course Description:*

Physical, chemical, and biological characteristics of lakes and reservoirs. Laboratory includes mapping, lake models, water chemistry, and surveys of diversity and abundance. One all-day Saturday field trip required. May be taught concurrently with BIO 662. Cannot receive credit for both BIO 562 and BIO 662.

Is there a graduate parallel course to this one? BIO 662

Rationale

Why is this course changing?*

A course name change was approved by faculty to a name that is more commonly used in the aquatic biology field. Faculty believe that the new name would be more relatable and attractive to students. The course material will not change. We will continue to focus on the physical, chemical, and biological characteristics of lakes and reservoirs.

Update to the lecture and lab contact hours is needed to match what has been listed in the class schedule for at least the last decade. This was how it was taught by my predecessor. I do not know why there is this mismatch between the class schedule and the course catalog. However, the 3 hours of lecture and 3 hours of lab work well for delivering the course content. Adjusting these contact hours does not change the credit hours or the total contact hours for the faculty. These credit hours and contact hours are similar to Stream Ecology (BIO 509/609) which is another systems course taught by another faculty in the department.

Only one Saturday field-trip is required and not two Saturday labs. The one Saturday field-trip is sufficient and allows for us to visit and sample up to two local lakes.

Does this change affect course assessment (e.g. student learning evidence / outcomes)?*

- Yes
 No

If yes, explain:

How was the change for this course determined?*

- Routine or annual review/assessment of curriculum
 Faculty Input
 Student Input
 Accreditation/certification compliance
 Review of catalog information
 Other

Other comments:

I have attached the syllabus from the Fall 2024 BIO 562/662 Limnology course.

What is the date that this course change was approved by departmental or program faculty?*

12/13/2024

Acknowledgements and Attachments

IMPACT REPORT STATEMENT

At the top of the page, click on *Run Impact Report*. Copy the results of the Impact Report and paste them into the space below.

Impact Report Results:*

Impact Report for BIO 562

| | |
|---|---|
| Source: 2025-2026 Undergraduate Catalog | |
| Description | BIO 562 - Limnology |
| Programs | Biology (Comprehensive) (BS) |
| | Geography and Sustainability (Comprehensive) (BS) |
| | Museum Studies Minor |

Acknowledgement Statement*



I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Catalog OID (Item ID) 47893

Catalog Status

Active-Visible

Inactive-Hidden

Disposition Information

Effective Term

Fall

Spring

Summer

Implementation Notes

Degree Audit Notes

Grade Mode for

Standard

Catalog

Pass/Not Pass

**Schedule Type for
Catalog**

Combination Lecture and Lab

Lab

Lecture

Course Type

Biology

CSC - 460 - Senior Capstone Project

2025-2026 UG Course New Form

General Catalog Information

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Academic Unit:*

Department of Computer Science

Course Code:*

CSC

Course Number:* 460

Course Title:* Senior Capstone Project

Prerequisite: CSC 450

Corequisite:

Recommended Prerequisite:

Credit Hours:* 3

Type
(Lecture/Lab/Other):* Lecture
 Lab
 Both
 Other

Lecture Contact Hours: 3

Lab Contact Hours:

If this course may be repeated for additional credit, enter the repeatable limit.

This course CANNOT be graded as Pass/Not Pass. * Yes Not Applicable

Is this course graded Pass/Not Pass ONLY? * Yes Not Applicable

Is there a graduate parallel course to this one?

Is this course identical to another undergraduate course?

Check all periodicity that applies. *

- Fall
- Fall Even
- Fall Odd
- Spring
- Spring Even
- Spring Odd
- Summer
- Demand

Course Description: * This course offers students a capstone project experience, emphasizing teamwork and formal systems analysis and design methods. Students will work collaboratively to develop a large-scale software system to solve a real-world problem.

Rationale

Purpose of Course: * Currently the CSC 450 class is a 4-credit hour class, which incorporates software engineering and capstone project. It has been a challenge for any instructor teaching this course to cover the topics of software engineering along with a semester long capstone project. The recommendation to split this course into two 3-credit hour courses has been demanded for many years by students, course instructors, and advisory board members. Since the CSC department did not have sufficient faculty members in the past, the decision to split the course into two has long been delayed. The recent ABET accreditation visit also strongly suggested this change. Based on all the recommendations, we have changed CSC 450 to a 3-credit hour course and moving the capstone project component into this new course CSC 460.

Enrollment Expectations

Enrollment Expectations

What is the anticipated source of students for this course?*

All computer science students will be required to take this course as part of the program requirements.

Anticipated Average Enrollment per class section:* 30

Maximum Enrollment Limit per class section:* 30

Anticipated Average Enrollment per semester:* 30

Maximum Enrollment Limit per semester:* 30

Anticipated Average Enrollment per year:* 60

Maximum Enrollment Limit per year:* 60

Resource Needs

Will this new course require additional library holdings?* Yes No

Will this new course require additional computer resources?* Yes No

Will this new course require additional or remodeled facilities?* Yes No

Will this new course require additional equipment or supplies?* Yes No

Will this new course require, additional travel funds?* Yes No

Will there be any additional costs associate with this course?* Yes No

If yes, to any of the above, detail specific resource needs:

Faculty Impact

Faculty Load Assignment (equated hours):* 3

Additional faculty needed; general vs. specialized* Yes No

Additional faculty needed; regular vs. per-course* Yes No

If additional faculty are not required, how will faculty be made available to teach this course?*

The CSC department has hired three new faculty members in 2024. The CSC department now has enough faculty members to offer this course.

List names of current faculty qualified and available to teach this course:*

Dr. Razib Iqbal
Dr. Mohammed Belkhouche
Dr. Adnan Maruf
Dr. Rahul Dubey

If from within the department, will students be taking this course in addition to or in place of other courses?*

Yes
 No

If from outside the department, which courses in other departments would most likely be affected?*

None

Other comments:

Acknowledgements and Attachments

What is the date that this new course was approved by departmental faculty?*

11/05/2024

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Note: A syllabus is not required.

Acknowledgement Statement*

I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

**Disposition
Information**

- Effective Term** Fall
 Spring
 Summer

**Implementation
Notes**

Degree Audit Notes

- Grade Mode for
Catalog** Standard
 Pass/Not Pass

**Schedule Type for
Catalog**

Course Type:

CSC - 534 - Big Data Analytics

2025-2026 UG Course Change Form

General Catalog Information

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Academic Unit:*

Department of Computer Science

Course Code:*

CSC

Course Number:* 534

Course Title:* Big Data Analytics

Prerequisite:

[CSC 232](#).

Corequisite:

Recommended
Prerequisite:

Credit Hours:* 3

Lecture Contact
Hours: 3

Lab Contact Hours:

If changing the
repeatable hours or
adding repeatable
hours, enter the
repeatable limit
desired.

**Type
(Lecture/Lab/Other)***

- Lecture
- Lab
- Both
- Other

Grade Mode*

- Letter Grades (Standard)
- Pass Not Pass ONLY
- CANNOT Pass Not Pass

**Check all periodicity
that applies.***

- Fall
- Fall Even
- Fall Odd
- Spring
- Spring Even
- Spring Odd
- Summer
- Demand

Course Description:*

A study of tools, techniques, and frameworks for extracting useful information from large data. Study of machine learning algorithms for data analytics. Visual display of results.

**Is there a graduate
parallel course to
this one?**

Rationale

**Why is this course
changing?***

Based on careful assessment of student performance and course content, it has been determined that CSC 232 provides sufficient foundational knowledge for success in CSC 534. Recent course evaluations and faculty discussions have demonstrated that the additional prerequisites of CSC 330 and CSC 335 are not needed for mastering the content in CSC 534. This prerequisite change will improve course accessibility while maintaining academic rigor and student success rates. This change has been reviewed and supported by faculty members in the computer science department.

**Does this change
affect course
assessment (e.g.
student learning
evidence /
outcomes)?***

- Yes
- No

If yes, explain:

How was the change for this course determined?*

- Routine or annual review/assessment of curriculum
- Faculty Input
- Student Input
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- Review of catalog information
- Other

Other comments:

What is the date that this course change was approved by departmental or program faculty?* 10/31/2024

Acknowledgements and Attachments

IMPACT REPORT STATEMENT

At the top of the page, click on *Run Impact Report*. Copy the results of the Impact Report and paste them into the space below.

Impact Report Results:*

Impact Report for CSC 534

Source: 2025-2026 Undergraduate Catalog

| | |
|----------|---------------------------------------|
| Programs | Data Science (Non-Comprehensive) (BS) |
|----------|---------------------------------------|

Acknowledgement Statement*

- I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Catalog OID (Item ID) 50448

Catalog Status Active-Visible

Inactive-Hidden

**Disposition
Information**

- Effective Term** Fall
 Spring
 Summer

**Implementation
Notes**

Degree Audit Notes

- Grade Mode for
Catalog** Standard
 Pass/Not Pass

**Schedule Type for
Catalog**

Course Type

CSC - 537 - Deep Learning

2025-2026 UG Course Change Form

General Catalog Information

****Instructions****

Complete Proposal Form

Complete all required fields, marked with an *.

Do not change the academic unit field.

Edit fields that need update by clicking on the text in the field. If a required field does not need to change, no need to update.

Generate the **Impact Report** by clicking *Run Impact Report* at the top of the page, select the UG catalog map, and copy the results into the space provided on the form. **This is required.** Complete the *Acknowledgement* section.

Launch Proposal

Launch proposal by clicking *Validate and Launch* at the top or bottom of the proposal. If all required fields are completed, the proposal will launch into the workflow approval process. If required fields have not been completed, a list of the missing fields will be provided. Those fields must be completed before the proposal is launched again.

Once the proposal has been launched, originators must follow the steps below to "approve" the proposal.

Approve Proposal

Make a decision (approve) by clicking the *Decisions* tab using the check mark icon in the right-side menu. **The proposal is NOT submitted until the originator approves the proposal first.**

If needed, comment on the proposal by clicking the *Discussion* tab using the chat icon in the right-side menu and clicking the + *Add Comment* button. Comments can be added to the proposal at any time.

To Review Proposal (After Launch)

View changes to the proposal by clicking the *Discussion* tab using the chat icon in the right-side menu and selecting "*Show current with markup*" on the *User Tracking* dropdown.

View current comments concerning this proposal by clicking the *Discussion* tab using the chat icon in the right-side menu.

View the history of the proposal by clicking the *Workflow Status* tab using the bullet list icon in the right-side menu.

View uploaded files associated with the proposal by clicking the paperclip icon in the right-side

menu to access the *Files* tab.

The information imported for the course change is from the most recent catalog.

If changing the course number, originators must check course number availability prior to submission using this resource: [Course Number Availability](#).

Parallel UG/GR courses must match exactly, except for prerequisites.

Identical courses must match exactly, including prerequisites.

Office of the Registrar will add standardized statements to all parallel and identical courses during implementation. Originators do not need to add these statements.

If a course is **not identical or parallel to another**, but students may not earn credit for a different course as well, the “*Cannot receive credit for both XXXxxx and XXXxxx*” must be added to the course description. *Example: LAW 335 and 532.*

Courses listed in prerequisites, corequisites, recommended prerequisites, and descriptions may be catalog links shown in green. Catalog links will be updated by the OOR during implementation.

Course changes that affect program information in the catalog will not be implemented without a corresponding program change form.

For system support, email curriculum@missouristate.edu.

For information regarding Faculty Senate bylaws, email faculty senate@missouristate.edu.

Academic Unit:*

Department of Computer Science

Course Code:*

CSC

Course Number:* 537

Course Title:* Deep Learning

Prerequisite:

[CSC 232](#) and [MTH 261](#).

Corequisite:

Recommended
Prerequisite:

Credit Hours:* 3

Lecture Contact
Hours: 3

Lab Contact Hours:

If changing the
repeatable hours or
adding repeatable
hours, enter the
repeatable limit
desired.

**Type
(Lecture/Lab/Other)***

- Lecture
- Lab
- Both
- Other

Grade Mode*

- Letter Grades (Standard)
- Pass Not Pass ONLY
- CANNOT Pass Not Pass

**Check all periodicity
that applies.***

- Fall
- Fall Even
- Fall Odd
- Spring
- Spring Even
- Spring Odd
- Summer
- Demand

Course Description:*

A study of neural networks, including backpropagation, loss functions, gradient descent, convolutional neural networks, recurrent neural networks, regularization techniques, network architectures, transfer learning, generative models.

**Is there a graduate
parallel course to
this one?**

Rationale

**Why is this course
changing?***

Based on careful assessment of course content, it has been determined that CSC 232 and MTH 261 provide sufficient foundational knowledge for success in CSC 537. The prerequisites of CSC 330 and MTH 333 are not needed for mastering the content in CSC 537. This prerequisite change will improve course accessibility while maintaining academic rigor and student success rates. This change has been reviewed and supported by faculty members in the computer science department.

**Does this change
affect course
assessment (e.g.
student learning
evidence /
outcomes)?***

- Yes
- No

If yes, explain:

How was the change for this course determined?*

- Routine or annual review/assessment of curriculum
- Faculty Input
- Student Input
- Accreditation/certification compliance
- Review of catalog information
- Other

Other comments:

What is the date that this course change was approved by departmental or program faculty?* 10/31/2024

Acknowledgements and Attachments

IMPACT REPORT STATEMENT

At the top of the page, click on *Run Impact Report*. Copy the results of the Impact Report and paste them into the space below.

Impact Report Results:*

Impact Report for CSC 537

Source: 2025-2026 Undergraduate Catalog

| | |
|----------|---------------------------------------|
| Programs | Data Science (Non-Comprehensive) (BS) |
|----------|---------------------------------------|

Acknowledgement Statement*

- I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Catalog OID (Item ID) 50449

Catalog Status Active-Visible

Inactive-Hidden

**Disposition
Information**

- Effective Term** Fall
 Spring
 Summer

**Implementation
Notes**

Degree Audit Notes

- Grade Mode for
Catalog** Standard
 Pass/Not Pass

**Schedule Type for
Catalog**

Course Type

Computer Science (Non-Comprehensive) (BS)

2025-2026 UG Program Change Form

General Catalog Information

****Instructions****

Complete Proposal Form

Complete all required fields, marked with an *.

Do not change the academic unit field.

Edit fields that need update by clicking on the text in the field. If a required field does not need to change, no need to update.

Complete the *Acknowledgement* section.

Launch Proposal

Launch proposal by clicking *Validate and Launch* at the top or bottom of the proposal. If all required fields are completed, the proposal will launch into the workflow approval process. If required fields have not been completed, a list of the missing fields will be provided. Those fields must be completed before the proposal is launched again.

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To Review Proposal (After Launch)

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View current comments concerning this proposal by clicking the *Discussion* tab using the chat icon in the right-side menu.

View the history of the proposal by clicking the *Workflow Status* tab using the bullet list icon in the right-side menu.

View uploaded files associated with the proposal by clicking the paperclip icon in the right-side menu to access the *Files* tab.

New courses (currently not in the catalog) must be submitted in Curriculog *before* completing this change program process, if the new courses are to be included in this change program proposal.

Select *Program* below as the *Type of Program* before importing curriculum data. DO NOT select Shared Core.

Type of Program* Program
 Shared Core

Academic Unit* Department of Computer Science

Choose One:* Comprehensive Undergraduate Major
 Non-Comprehensive Undergraduate Major
 Undergraduate Major (not a BS or BA degree)
 Minor
 Certificate

Does this program have options?* Yes
 No

Program Title* Computer Science (Non-Comprehensive) (BS)

Degree Type* Bachelor of Science

Additional Catalog Information* none

Rationale

What is the date that this program change was approved by department or program faculty?* 12/06/2024

Why is this program changing?* CSC 450, 4 credit hours course, has been split into two 3 credit hour courses, CSC 450 and CSC 460. We also changed the number of credit hours for CSC 333 from 2 to 3. These changes affect the program. Even with the additional 3 credit hours, the program remains under 120 credit hours.

Catalog Curriculum Information

Follow these steps to update curriculum:

Step 1-Preview Curriculum or View Curriculum Schema

These views will show the current curriculum structure and courses.

Step 2-Remove courses or cores (sections), if needed

A core in Curriculog is defined as a section of the program in the catalog.

Use the “trashcan icons” to delete an entire core/section or to delete existing courses.

Step 3-Change cores (sections), if needed

Expand a core/section to update the title, description, or custom text.

Move or rearrange a core/section by dragging and dropping, using the 4 headed arrow. Moving a core/section under another will produce a "sub-core".

Step 4-Adding Courses

The first step is to bring courses into the proposal to use when building out the desired program requirements and sections.

On the "View Curriculum Courses" tab, there are two options for adding courses: "Add Course" and "Import Course."

For courses already in the catalog, click on "Import Course" and find the courses needed.

For new courses currently going through a Curriculog Approval Process click on "Add Course".

A box will open asking you for the Prefix, Course Number and Course Title. Be sure this information matches the new course prefix/number/title exactly.

To remove a course that was added into the proposal but no longer needed, click on the “trashcan icon” to delete.

Step 5-Adding Sections

Click on "View Curriculum Schema" then select “Add Core”. When the new core (section) appears, expand and enter a title. Title examples: "Specific General Education Requirements" or "Required Courses", or "Capstone Experience".

Enter a description, if applicable.

Add courses (from the steps above) to the section(s), as needed.

Add custom text, if applicable. Custom text examples: "3 hours from", or "any additional course numbered 300 or above", or adding "or" between a choice of courses.

Move or rearrange a core/section by dragging and dropping, using the 4 headed arrow. Moving a core/section under another will produce a "sub-core".

Step 6-Preview Curriculum

This preview will show the structure of the sections and courses added to this proposal.

This is available at any point during the building of this proposal.

Note: The Office of the Registrar will format this program in the catalog appropriately, as needed.

Major Requirements

Major Core (45 hours):

CSC 450 (4) is split into CSC 450 (3) and CSC 460 (3). So, major core hours change from 43 to 45 hours.

| | |
|--|---|
| CSC 130 The World of Computer Science | 3 |
| CSC 131 Computational Thinking | 4 |
| CSC 232 Data Structures | 4 |
| CSC 244 Computer Architecture | 3 |
| CSC 335 Database System Concepts | 3 |
| CSC 360 Operating Systems | 3 |
| CSC 365 Internet Programming | 3 |
| CSC 388 Introduction to Secure Computing | 3 |
| CSC 450 Introduction to Software Engineering | 4 |
| CSC 460 Senior Capstone Project | |
| CSC 482 Seminar in Computer Science | 1 |
| CSC 565 Computer Networks | 3 |

Nine Additional Hours From

[CSC 300](#) and eligible CSC courses numbered higher than 303, with no more than three hours in [CSC 399](#) and no more than three hours in [CSC 596](#).
Courses not eligible: [CSC 500](#), [CSC 505](#), and [CSC 510](#).

Public Affairs Capstone Experience will be fulfilled by completion of:

| | |
|-------------------------------------|---|
| CSC 335 Database System Concepts | 3 |
| CSC 365 Internet Programming | 3 |
| CSC 482 Seminar in Computer Science | 1 |

Successful Completion of the Computer Science Major Field Test (MFT)

with at least a score of 145 for Computer Science/Computer Science option and 140 for Computer Science/Software Development option is required.

Minor Required or Second Major

(Note: The "Computer Science" option contains courses that satisfy the requirements for a minor in Mathematics.)

Complete One of the Following Options:

Computer Science Option (29-31 Hours):

CSC 333 will change from 2 to 3 credit hours.

| | |
|---|---|
| CSC 325 Algorithms and Advanced Data Structures | 3 |
| CSC 333 Languages and Machines | 2 |
| [After] | |
| PHY 123 Introduction to Physics I | 4 |
| [Right] * | |
| [After] OR | |
| PHY 203 Foundations of Physics I | 5 |
| [Right] * | |
| [After] | |
| BIO 121 General Biology I | 4 |
| [Right] * | |
| [After] OR | |
| BMS 110 Introduction to Human Biology | 3 |
| [Right] * | |

Mathematics Requirements:

Note: These required mathematics courses automatically satisfy the requirements for a minor in Mathematics.

| | |
|---|---|
| MTH 261 Analytic Geometry and Calculus I | 5 |
| [Right] * | |
| MTH 280 Analytic Geometry and Calculus II | 5 |
| [After] | |
| MTH 314 Discrete Mathematics | 3 |
| [After] OR | |

| | |
|--|---|
| [After] OR MTH 315 Algebraic Structures | 3 |
| [After] MTH 345 Statistics for Scientists and Engineers | 3 |
| [After] OR MTH 540 Statistical Theory I | 3 |

Software Development Option (27-30 Hours):

| | |
|---|---|
| CSC 455 Software Quality Assurance and Project Management | 3 |
|---|---|

Three Additional Hours From:

From eligible CSC courses numbered 500 or higher excluding [CSC 596](#).
Courses not eligible: [CSC 500](#), [CSC 505](#), and [CSC 510](#).

Each of These Courses May Also Count Toward General Education Requirements.

| | |
|---|---|
| ECO 165 Principles of Microeconomics | 3 |
| PSY 121 Introductory Psychology | 3 |
| ENG 321 Writing II: Beginning Technical Writing | 3 |

One Course From Each Group (at Least One of the Courses With a Lab):

Group 1:

| | |
|--|---|
| BIO 121 General Biology I | 4 |
| [Right] * | |
| BMS 110 Introduction to Human Biology | 3 |
| [Right] * | |
| [After] BMS 110 - Introduction to Human Biology | |
| BMS 111 Introduction to Human Biology Laboratory | 1 |
| [Right] * | |

Group 2:

| | |
|---|----------|
| CHM 116 Fundamentals of Chemistry | 4 |
| [Right] * | |
| CHM 160 General Chemistry I | 4 |
| [Right] * | |
| GLG 113 Earth: The Instruction Manual | 3 |
| GLG 114 Earth: The Survival Guide | 3 |
| [Right] * | |
| GLG 116 Earth: The Hands-on Adventure | 1 |
| [Right] * | |
| GRY 135 Principles of Weather and Climate | 4 |
| GRY 145 Earth's Natural Environment | 3 |
| GRY 146 Earth's Natural Environment Laboratory | 1 |
| [Right] * | |
| PHY 123 Introduction to Physics I | 4 |
| [Right] * | |
| PHY 203 Foundations of Physics I | 5 |
| [Right] * | |
| AST 113 Modern Astronomy | 3 |
| [Right] * | |
| AST 114 Survey of Astronomy | 4 |
| [Right] * | |
| AST 115 Basic Astronomy | 4 |
| [Right] * | |

One Course From:

Other courses may be acceptable with department approval.

| | |
|--|----------|
| MKT 350 Principles of Marketing | 3 |
| MGT 340 Principles of Management | 3 |
| COM 315 Advanced Speaking in Professional Settings | 3 |
| PSY 305 Introduction to Industrial- Organizational Psychology | 3 |
| PSY 481 Human Engineering | 3 |

Mathematics Requirement:

| | |
|-------------------------------------|----------|
| MTH 314 Discrete Mathematics | 3 |
| [After] OR | |
| MTH 315 Algebraic Structures | 3 |

*** May also count toward General Education requirements.**

Total Credit Hours: 72-76

Total credit hours changed to 72-76 as a result of the changes to CSC 333, CSC 450, and CSC 460.

University Level Requirements:

[General Education Program and Requirements](#)

[General Baccalaureate Degree Requirements](#)

Accreditation

The BS in Computer Science-Computer Science option is accredited by the Computing Accreditation Commission of ABET <http://www.abet.org/>.

Accelerated graduate program in Computer Science

Eligible students in this major may apply to the Master of Science in Computer Science program. Refer to the Graduate Catalog for more information. Refer to [Undergraduate Students Taking Graduate Classes](#) for additional information and procedures for obtaining permission for Mixed Credit.

Acknowledgements

Acknowledgement Statement*



I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Catalog OID (Item ID) 4620

Catalog Status

- Active-Visible
- Active-Hidden
- Inactive-Hidden

Program Type

Disposition Information

Effective Term

- Fall
- Spring
- Summer

Implementation Notes

Degree Audit Notes

Environmental Education Certificate

2025-2026 UG Program Change Form

General Catalog Information

****Instructions****

Complete Proposal Form

Complete all required fields, marked with an *.

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Complete the *Acknowledgement* section.

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New courses (currently not in the catalog) must be submitted in Curriculog *before* completing this change program process, if the new courses are to be included in this change program proposal.

Select *Program* below as the *Type of Program* before importing curriculum data. DO NOT select Shared Core.

Type of Program* Program
 Shared Core

Academic Unit*

Choose One:* Comprehensive Undergraduate Major
 Non-Comprehensive Undergraduate Major
 Undergraduate Major (not a BS or BA degree)
 Minor
 Certificate

Does this program have options?* Yes
 No

Program Title* Environmental Education Certificate

Degree Type*

Additional Catalog Information* This certificate is jointly offered by Department of Biology and School of Earth, Environment and Sustainability and provides coursework to improve or broaden the student's background knowledge of environmental related topics and provides instruction on techniques for presenting environmental topics in formal and in nonformal education settings. It also provides exposure to and access to a variety of national and regional environmental education resources that participants can use when developing their own educational programs in the future.

This certificate is administered by the College of Natural and Applied Science.

Rationale

What is the date that this program change was approved by department or program faculty?* 11/15/2024

Why is this program changing?*

The School of Earth, Environment, and Sustainability has submitted a cross-listed course for BIO 561, a certificate requirement. The GRY 572 will allow geography and sustainability majors and minors to add the Environmental Education Certificate while completing coursework within their discipline. In addition, more classes are now being offered as options in geography, sustainability, and biology, eliminating the need for students to complete exceptions for those courses.

Catalog Curriculum Information

Follow these steps to update curriculum:

Step 1-Preview Curriculum or View Curriculum Schema

These views will show the current curriculum structure and courses.

Step 2-Remove courses or cores (sections), if needed

A core in Curriculog is defined as a section of the program in the catalog.

Use the “trashcan icons” to delete an entire core/section or to delete existing courses.

Step 3-Change cores (sections), if needed

Expand a core/section to update the title, description, or custom text.

Move or rearrange a core/section by dragging and dropping, using the 4 headed arrow. Moving a core/section under another will produce a "sub-core".

Step 4-Adding Courses

The first step is to bring courses into the proposal to use when building out the desired program requirements and sections.

On the "View Curriculum Courses" tab, there are two options for adding courses: "Add Course" and "Import Course."

For courses already in the catalog, click on "Import Course" and find the courses needed.

For new courses currently going through a Curriculog Approval Process click on "Add Course".

A box will open asking you for the Prefix, Course Number and Course Title. Be sure this information matches the new course prefix/number/title exactly.

To remove a course that was added into the proposal but no longer needed, click on the “trashcan icon” to delete.

Step 5-Adding Sections

Click on "View Curriculum Schema" then select “Add Core”. When the new core (section) appears, expand and enter a title. Title examples: "Specific General Education Requirements" or "Required Courses", or "Capstone Experience".

Enter a description, if applicable.

Add courses (from the steps above) to the section(s), as needed.

Add custom text, if applicable. Custom text examples: "3 hours from", or "any additional course numbered 300 or above", or adding "or" between a choice of courses.

Move or rearrange a core/section by dragging and dropping, using the 4 headed arrow. Moving a core/section under another will produce a "sub-core".

Step 6-Preview Curriculum

This preview will show the structure of the sections and courses added to this proposal.

This is available at any point during the building of this proposal.

Note: The Office of the Registrar will format this program in the catalog appropriately, as needed.

Program Requirements

GRY 108 Principles of Sustainability **3**
 [Before] **BIO 561 Environmental Issues, Education,
 and Interpretation**

**GRY 572 Environmental Issues, Education,
 and Interpretation**

**At least nine hours from following with at least two different
 course codes:**

Only one internship and one field course can count toward this program.
 Cannot count both [BIO 547](#) and [GLG 547](#). Other courses approved by the
 faculty advisor for the program may be substituted on a case-by-case basis.

| | |
|---|------------|
| BIO 399 Cooperative Education in Biology | 1-3 |
| BIO 485 Marine Conservation | 3 |
| BIO 527 Field Biology | 1-4 |
| BIO 547 Water Resources | 3 |
| BIO 564 Ozarks Natural Communities | 2 |
| BIO 579 Conservation Biology | 3 |
| GRY 318 Geography of the National Parks | 3 |
| GRY 348 Geomorphology | 3 |
| GRY 353 Field Experience in Geography (inside continental USA) | 3 |
| GRY 399 Internship in Geography | 1-3 |
| GLG 113 Earth: The Instruction Manual | 3 |
| GLG 114 Earth: The Survival Guide | 3 |
| GLG 115 Life of the Past | 3 |
| GLG 350 Speleology | 3 |
| GLG 360 Directed Field Trips | 1-3 |
| GLG 399 Internship in Geology | 1-3 |
| GLG 574 Petroleum Geology | 3 |

**All Candidates Must Satisfy the General University Certificate
 Requirements.**

Total Credit Hours: 14-17

Completion Requirement

Attain a GPA of 2.50 or higher in the courses used to fulfill the certificate requirements.

Acknowledgements

Acknowledgement Statement*



I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Catalog OID (Item ID) 4629

Catalog Status

- Active-Visible
- Active-Hidden
- Inactive-Hidden

Program Type

Certificates

Disposition Information

Effective Term

- Fall
- Spring
- Summer

Implementation Notes

Degree Audit Notes

PHY - 520 - Quantum Computing

2025-2026 UG Course New Form

General Catalog Information

****Instructions****

Complete Proposal Form

Complete all required fields, marked with an *.

Only one academic unit may be selected.

Complete the *Acknowledgement* section.

Launch Proposal

Launch proposal by clicking *Validate and Launch* at the top or bottom of the proposal. If all required fields are completed, the proposal will launch into the workflow approval process. If required fields have not been completed, a list of the missing fields will be provided. Those fields must be completed before the proposal is launched again.

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View uploaded files associated with the proposal by clicking the paperclip icon in the right-side menu to access the *Files* tab.

Originators must check course number availability prior to submission using this resource: [Course Number Availability](#).

Parallel UG/GR courses must match exactly, except for prerequisites.

Identical courses must match exactly, including prerequisites.

Office of the Registrar will add standardized statements to all parallel and identical courses during implementation. Originators do not need to add these statements.

If a course is **not identical or parallel to another**, but students may not earn credit for a different course as well, the *“Cannot receive credit for both XXXxxx and XXXxxx”* must be added to the course description. *Example: LAW 335 and 532.*

If a new course should be added to a program in the catalog (as a requirement or an elective, etc.), a program proposal must also be submitted.

For system support, email curriculum@missouristate.edu.

For information regarding Faculty Senate bylaws, email facultysenate@missouristate.edu.

Academic Unit:*

Department of Physics, Astronomy and Materials Science

Course Code:*

PHY

Course Number:* 520

Course Title:* Quantum Computing

Prerequisite: PHY 375 or CHM 507

Corequisite:

Recommended Prerequisite:

Credit Hours:* 3

Type
(Lecture/Lab/Other):* Lecture
 Lab
 Both
 Other

Lecture Contact Hours: 3

Lab Contact Hours:

If this course may be repeated for additional credit, enter the repeatable limit.

This course CANNOT be graded as Pass/Not Pass. * Yes Not Applicable

Is this course graded Pass/Not Pass ONLY? * Yes Not Applicable

Is there a graduate parallel course to this one? PHY 620

Is this course identical to another undergraduate course? No

Check all periodicity that applies. *

- Fall
- Fall Even
- Fall Odd
- Spring
- Spring Even
- Spring Odd
- Summer
- Demand

Course Description: * Prerequisite: PHY 375 or CHM 507. Quantum information principles, quantum entanglement, qubits, quantum gates, quantum computer architecture and physical platforms, noise and decoherence, and quantum computing applications. May be taught concurrently with PHY 620. Cannot receive credit for both PHY 520 and PHY 620.

Rationale

Purpose of Course: * PHY 520 is a course required for the (upcoming) proposed B.S. Physics - Quantum Computing track option.

It is a course designed to keep students current with the physics of quantum computing.

Enrollment Expectations

What is the anticipated source of students for this course? * B.S. physics majors and CNAS B.S. majors

Course: ..

Anticipated Average Enrollment per class section: * 15

Maximum Enrollment Limit per class section: * 30

Anticipated Average Enrollment per semester: * 15

Maximum Enrollment Limit per semester: * 30

Anticipated Average Enrollment per year: * 15

Maximum Enrollment Limit per year: * 30

Resource Needs

Will this new course require additional library holdings? * Yes No

Will this new course require additional computer resources? * Yes No

Will this new course require additional or remodeled facilities? * Yes No

Will this new course require additional equipment or supplies? * Yes No

Will this new course require, additional travel funds? * Yes No

Will there be any additional costs associate with this course? * Yes No

If yes, to any of the above, detail specific resource needs:

Faculty Impact

Faculty Load Assignment (equated hours): * 3

Additional faculty needed; general vs. specialized * Yes No

Additional faculty needed; regular vs. per-course * Yes No

If additional faculty are not required, how will faculty be made available to teach this course?

Sufficient faculty are currently available within the two year rotation of this course.

List names of current faculty qualified and available to teach this course:*

Ridwan Sakidja

If from within the department, will students be taking this course in addition to or in place of other courses?*

Yes

No

If from outside the department, which courses in other departments would most likely be affected?*

None

Other comments:

Once the course is passed college council, the new Physics degree emphasis area in quantum computing will be submitted.

Acknowledgements and Attachments

What is the date that this new course was approved by departmental faculty?*

12/02/2024

ATTACHMENT INSTRUCTION

No attachments are required but may be uploaded if desired by navigating to the right side menu and clicking "Files".

Note: A syllabus is not required.

Acknowledgement Statement*

I acknowledge that all areas of this proposal have been completed as required.

System Administrator Only

Disposition Information

Effective Term Fall
 Spring
 Summer

**Implementation
Notes**

Degree Audit Notes

**Grade Mode for
Catalog** Standard
 Pass/Not Pass

**Schedule Type for
Catalog**

Course Type: