

MEMORANDUM TO: Ogden College of Science and Engineering Curriculum Committee

Dr. Melanie Autin
Dr. Nahid Gani
Dr. Scott Grubbs
Dr. Ting-Hui Lee
Dr. Jeremy Maddox

Dr. Andy Mienaltowski
Dr. Les Pesterfield
Dr. Todd Willian
Mr. Jason Wilson

FROM: Dr. Stuart Burris, Chair

SUBJECT: Agenda for Thursday, December 1, 2022

A. OLD BUSINESS:

- I. Consideration of the minutes of the October 6, 2022 meeting.

B. NEW BUSINESS:

Type of item	Description of Item & Contact Information
Informational	<u>The following items were sent through the expedited process:</u> Proposal to Suspend a Course CHEM 306: Food Chemistry, 3 hrs. Proposal to Change Course Prefix MA 109C: General Math, 3 hrs. MA 115C, Applied College Algebra, 3 hrs. MA 116C, College Algebra, 3 hrs.
Action	Proposal to make Multiple Course Revisions GEOL 301, Geology and Climate: Past and Future, 3 hrs. Contact: Royhan Gani, Royhan.gani@wku.edu , x5977
Action	Proposal to Create a New Course PHYS 415, Physics Teaching Seminar: Forces and Interactions, 1 hr. Contact: Ting-Hui Lee, ting-hui.lee@wku.edu , x6472
Action	Proposal to Create a New Course PHYS 416, Physics Teaching Seminar: Momentum and Energy, 1 hr. Contact: Ting-Hui Lee, ting-hui.lee@wku.edu , x6472
Action	Proposal to Create a New Course PHYS 417, Physics Teaching Seminar: Waves, Electricity, and Magnetism, 1 hr. Contact: Ting-Hui Lee, ting-hui.lee@wku.edu , x6472
Action	Proposal to Make Multiple Course Revisions PSYS 462: Neuroscience of Learning and Memory, 3 hrs. Contact: Andrew Mienaltowski, Andrew.mienaltowski@wku.edu , 270-681-0270

C. OTHER BUSINESS

Members Present:

Dr. Melanie Autin

Dr. Nahid Gani

Dr. Scott Grubbs

Dr. Ting-Hui Lee

Dr. Jeremy Maddox

Dr. Andy Mienaltowski

Dr. Les Pesterfield

FROM: Dr. Stuart Burris, Chair

The meeting was called to order at 4:00pm.

OLD BUSINESS:

Minutes from the September 2022 meeting required no corrections and were approved as posted.

NEW BUSINESS:

Action Agenda

Maddox/Grubbs motioned to approve the Proposal to Make Multiple Course Revisions: AS 375. Motion passed with friendly amendment.

Autin/Grubbs motioned to approve the Proposal to Make Multiple Course Revisions: AS 380. Motion passed with friendly amendment.

Grubbs/Willian motioned to approve the Proposal to Make Multiple Course Revisions: SEAS 475. Motion passed with friendly amendment.

Other Business:

None

COURSE INVENTORY MANAGEMENT

New Course Proposal

Viewing: CHEM 106 : Fundamentals of General Chemistry Laboratory

Proposed Action

Active

Academic Level

Undergraduate

Course prefix (subject area)

CHEM - Chemistry

Course number

106

Department

Chemistry

College

Science and Engineering

Course title

Fundamentals of General Chemistry Laboratory

Abbreviated course title

FUNDAMENTALS OF GEN CHEM LAB

Course description

Laboratory to accompany CHEM 105. Pre-lab lecture and laboratory meet two and one-half hours per week.

Credit hours

1

Repeatable

Yes

Number of repeats

2

For maximum credits

1

Default grade type

Standard Letter

Is this course intended to span more than one term?

No

Schedule type

Lab

CIP Code

400501 - Chemistry, General.

Does this course have prerequisites

No

Corequisites

CHEM 105 - Fundamentals of General Chemistry

Restrictions:

College restriction?

No

Field of study restriction/major?

No

Classification restriction?

No

Is this related to other courses at WKU?

No

Are you seeking Colonnade approval for this course?

No

Key: 1780

MATH 109E: GENERAL MATHEMATICS

History

a. Nov 15, 2022 by Robin Ayers (robin.ayers)

Viewing: MATH 109E : General Mathematics

Formerly known as: MA 109C

Last approved: Tue, 15 Nov 2022 09:14:46 GMT

Last revision: Thu, 10 Nov 2022 19:06:47 GMT

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Robin Ayers	robin.ayers@wku.edu	270-745-5009
Leslie Plumlee	leslie.plumlee@wku.edu	270-303-6147

Review Type

Expedited

Term for implementation

Fall 2023

Academic Level

Undergraduate

Course prefix (subject area)

MATH - Mathematics (Univ)

Course number

109E

Department

Mathematics

College

Science and Engineering

Course title

General Mathematics

Abbreviated course title

GENERAL MATH

Course description

Terminal course for non-science majors suggested for the student who has satisfactorily completed minimum high school mathematics requirements and needs no further work in algebra. Topics include sets, introduction to probability and statistics, geometry, and consumer mathematics.

Credit hours

3

Repeatable

Yes

Number of repeats

2

For maximum credits

3

Default grade type

Standard Letter

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code

270101 - Mathematics, General.

Does this course have prerequisites

No

Restrictions:

College restriction?

No

Field of study restriction/major?

No

Classification restriction?

No

Reason for changing the course

This course is not changing in content. The course prefix is the only change in the course. The MA prefix was used as the former South Campus prefix for mathematics. This change from MA to MATH would allow for ease of registration process to allow all former courses with MA to be prefixed as MATH.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Mathematics: Dr. Kanita Ducloux, Oct. 21, 2022
Office of the Registrar: Jennifer Hammonds, Oct. 21, 2022
Ogden College: Dr. Stuart Burris, Oct. 21, 2022
ACDC: Chris Jensen, Oct. 21, 2022

Are you seeking Colonnade approval for this course?

Yes

Colonnade Programs

Foundations

Foundations: Course Categories

Quantitative Reasoning

Please provide a brief rationale for why this existing course fits into the Colonnade program that addresses why the proposals is being submitted now.

This course is currently a Colonnade course. There are no changes to the content of the course, therefore, it will continue to be a Colonnade course. The request is being made at this time because the former South Campus no longer exists, and all mathematics courses will have the prefix MATH.

Syllabus

MATH 109 and 109E Departmental Syllabus.docx

Is this course part of a program that leads to teacher certificate?

No

Learning outcomes

#	Learning outcomes
1	Interpret information presented in mathematical and/or statistical forms.
2	Illustrate and communicate mathematical and/or statistical information symbolically, visually, and/or numerically.
3	Determine when computations are needed and execute the appropriate computations.
4	Apply an appropriate model to the problem to be solved.
5	Make inferences, evaluate assumptions, and assess limitations in estimation modeling and/or statistical analysis.

Content outline

#	Topic
1	Set Theory
2	Counting Methods and Probability Theory
3	Statistics
4	Geometry
5	Personal Finance

Key: 9622

MATH 115E: APPLIED COLLEGE ALGEBRA

History

a. Nov 15, 2022 by Robin Ayers (robin.ayers)

Viewing: MATH 115E : Applied College Algebra

Formerly known as: MA 115C

Last approved: Tue, 15 Nov 2022 09:14:47 GMT

Last revision: Thu, 10 Nov 2022 19:15:24 GMT

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Robin Ayers	robin.ayers@wku.edu	270-745-5009
Leslie Plumlee	leslie.plumlee@wku.edu	270-303-6147

Review Type

Expedited

Term for implementation

Fall 2023

Academic Level

Undergraduate

Course prefix (subject area)

MATH - Mathematics (Univ)

Course number

115E

Department

Mathematics

College

Science and Engineering

Course title

Applied College Algebra

Abbreviated course title

APPLIED COLLEGE ALGEBRA

Course description

Intended primarily for students who are not majoring in a scientific or technical field; not intended for students whose curriculum requires trigonometry or calculus. Emphasis is on real-world problems that involve reading, writing, calculating, synthesizing, and clearly reporting results. Topics include linear, quadratic, exponential and logarithmic functions, and systems of equations. (Graphing calculator required).

Credit hours

3

Repeatable

Yes

Number of repeats

2

For maximum credits

3

Default grade type

Standard Letter

Is this course intended to span more than one term?

No

Schedule type

Lecture/Lab

CIP Code

270101 - Mathematics, General.

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
	(	A02	20			
Or		S02	540			
Or		MPE	12			
Or		K02	12			
Or		MATP	Y			
Or		HSGP	3.0)	
Or	(	HSGP	2.0			
And		MATH 105	D	UG	)	Yes

Restrictions:**College restriction?**

No

Field of study restriction/major?

No

Classification restriction?

No

Reason for changing the course

This course is not changing in content. The course prefix is the only change in the course. The MA prefix was used as the former South Campus prefix for mathematics. This change from MA to MATH would allow for ease of registration process to allow all former courses with MA to be prefixed as MATH.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Mathematics: Dr. Kanita Ducloux, Oct. 21, 2022
 Office of the Registrar: Jennifer Hammonds, Oct. 21, 2022
 Ogden College: Dr. Stuart Burris, Oct. 21, 2022
 ACDC: Chris Jensen, Oct. 21, 2022

Are you seeking Colonnade approval for this course?

Yes

Colonnade Programs

Foundations

Foundations: Course Categories

Quantitative Reasoning

Please provide a brief rationale for why this existing course fits into the Colonnade program that addresses why the proposals is being submitted now.

This course is currently a Colonnade course. There are no changes to the content of the course, therefore, it will continue to be a Colonnade course. The request is being made at this time because the former South Campus no longer exists, and all mathematics courses will have the prefix MATH.

Syllabus

MATH 115 and 115E Department Syllabus .docx

Is this course part of a program that leads to teacher certificate?

No

Learning outcomes

#	Learning outcomes
1	Interpret information presented in mathematical and/or statistical forms.
2	Illustrate and communicate mathematical and/or statistical information symbolically, visually, and/or numerically.
3	Determine when computations are needed and execute the appropriate computations.
4	Apply an appropriate model to the problem to be solved.
5	Make inferences, evaluate assumptions, and assess limitations in estimation modeling and/or statistical analysis.

Content outline

#	Topic
1	Functions, Graphs, and Models; Linear Functions
2	Linear Models, Equations, and Inequalities
3	Quadratic, Piecewise-Defined, and Power Functions
4	Additional Topics with Functions
5	Exponential and Logarithmic Functions

Key: 9623

MATH 116E: COLLEGE ALGEBRA

History

a. Nov 18, 2022 by Robin Ayers (robin.ayers)

Viewing: MATH 116E : COLLEGE ALGEBRA

Last approved: Fri, 18 Nov 2022 09:18:21 GMT

Last revision: Thu, 10 Nov 2022 19:20:09 GMT

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Robin Ayers	robin.ayers@wku.edu	270-745-5009
Leslie Plumlee	leslie.plumlee@wku.edu	270-303-6147

Review Type

Expedited

Term for implementation

Fall 2023

Academic Level

Undergraduate

Course prefix (subject area)

MATH - Mathematics (Univ)

Course number

116E

Department

Mathematics

College

Science and Engineering

Course title

COLLEGE ALGEBRA

Abbreviated course title

COLLEGE ALGEBRA

Course description

Graphing and problem solving are integrated throughout the study of polynomial, absolute value, rational, radical, exponential, and logarithmic functions. (Graphing calculator required.)

Credit hours

3

Repeatable

Yes

Number of repeats

2

For maximum credits

3

Default grade type

Standard Letter

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code

270101 - Mathematics, General.

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
	(	A02	20			
Or		S02	540			
Or		MPE	12			
Or		K02	12			
Or		MATP	Y			
Or		HSGP	3.0)	
Or	(	HSGP	2.0			
And		MATH 105	D	UG	)	Yes

Restrictions:**College restriction?**

No

Field of study restriction/major?

No

Classification restriction?

No

Reason for changing the course

This course is not changing in content. The course prefix is the only change in the course. The MA prefix was used as the former South Campus prefix for mathematics. This change from MA to MATH would allow for ease of registration process to allow all former courses with MA to be prefixed as MATH.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

Mathematics: Dr. Kanita Ducloux, Oct. 21, 2022

Office of the Registrar: Jennifer Hammonds, Oct. 21, 2022

Ogden College: Dr. Stuart Burris, Oct. 21, 2022

ACDC: Chris Jensen, Oct. 21, 2022

Are you seeking Colonnade approval for this course?

Yes

Colonnade Programs

Foundations

Foundations: Course Categories

Quantitative Reasoning

Please provide a brief rationale for why this existing course fits into the Colonnade program that addresses why the proposals is being submitted now.

This course is currently a Colonnade course. There are no changes to the content of the course, therefore, it will continue to be a Colonnade course. The request is being made at this time because the former South Campus no longer exists, and all mathematics courses will have the prefix MATH.

Syllabus

MATH 116 and 116E Department Syllabus .docx

Is this course part of a program that leads to teacher certificate?

No

Learning outcomes

#	Learning outcomes
1	Interpret information presented in mathematical and/or statistical forms.
2	Illustrate and communicate mathematical and/or statistical information symbolically, visually, and/or numerically.
3	Determine when computations are needed and execute the appropriate computations.
4	Apply an appropriate model to the problem to be solved.
5	Make inferences, evaluate assumptions, and assess limitations in estimation modeling and/or statistical analysis.

Content outline

#	Topic
1	Graphs, Functions, and Models
2	More on Functions
3	Quadratic Functions and Equations; Inequalities
4	Polynomial Functions and Rational Functions
5	Exponential Functions and Logarithmic Functions
6	Systems of Linear Equations

Additional information

MA 116C renumbered to MATH 116E. Tie the equivalency.

Key: 9626

Course Change Request

Date Submitted: 09/29/22 8:22 pm

Viewing: **GEOL 301 : Earth's Climate in Time ~~Geology and Climate: Past and Future~~**

Last approved: 12/14/21 4:28 pm

Last revision: 10/26/22 5:17 pm

Changes proposed by: ryh84947

Catalog Pages
referencing this
course

[Colonnade Requirements](#)

[Department of Earth, Environmental, and Atmospheric Sciences](#)

Proposed Action

In Workflow

1. **GEO Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Approval Path

1. 09/23/22 2:27 pm
Leslie North
(leslie.north):
Rollback to Initiator
2. 10/25/22 12:34 pm
Leslie North
(leslie.north):
Approved for GEO Approval
3. 11/28/22 3:31 pm
Stuart Burris
(stuart.burris):
Approved for SC Dean

History

1. Dec 14, 2021 by
Jessica Dorris
(jessica.dorris)

Active

Contact(s)

Name	E-mail	Phone
M. Royhan Gani	royhan.gani@wku.edu	270-745-5977

Review Type	<u>Full Review</u>		
Term for implementation	Spring 2023		
Academic Level	Undergraduate		
Course prefix (subject area)	GEOL - Geology	Course number	301
Department	Geography & Geology		
College	Science and Engineering		
Course title	<u>Earth's Climate in Time</u> Geology and Climate:Past and Future		
Abbreviated course title	<u>EARTH'S CLIMATE IN TIME</u> GEOLOGY AND CLIMATE		

Course description

This paleoclimate course is a survey ~~Survey~~ of Earth's past climate changes, the present state, and what these mean for the future of our planet – our only home. Factors and processes that influence Earth's climate over a variety of timescales are examined. Connections between climate and life are emphasized.

Credit hours 3

Repeatable

Yes

Number of repeats 1

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 400601 - Geology/Earth Science, General.

Does this course have prerequisites

No ~~Yes~~

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? No

Classification
restriction? No

Departmental
Restrictions

Reason for changing
the course

Name Change: The current name is long and a bit old-fashioned. The proposed name is concise that captures the content of the course better. Also, this name should appeal to a broader student community.

Removal of prerequisite (GEOG/GEOL 103 OR GEOL 111 OR GEOL 112): After teaching this course for the last few years, it became evident that students didn't require prior knowledge of prerequisite geology courses to understand the materials presented in this course. Previously, a few students asked and received instructor's permission to enroll in this course without any prerequisite, and they completed the course successfully without any difficulty. This prerequisite removal will allow a broader population of students to enroll in this colonnade connection course.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

N/A

Are you seeking
Colonnade approval
for this course? No ~~Yes~~

Connections:
Course Categories Systems

Is this course part of
a program that leads
to teacher
certificate? No

Learning outcomes

#	Learning outcomes
1	<u>After successfully completing this course, students should be able to:</u> <u>Analyze paleoclimate archives and data</u>
<u>2</u>	<u>Examine long-term versus short-term paleoclimate changes</u>
<u>3</u>	<u>Evaluate the magnitude of Earth's past CO2 fluctuations</u>
<u>4</u>	<u>Scrutinize factors that influence paleoclimate systems</u>
<u>5</u>	<u>Assess the type of future climate disruptions</u>

Content outline

#	Topic
1	<u>Introduction: Science, Geology and climate</u>
<u>2</u>	<u>Components of paleoclimate systems</u>
<u>3</u>	<u>Geological archives, data, and models to understand paleoclimate</u>
<u>4</u>	<u>Past CO2 fluctuations and long-term climate</u>
<u>5</u>	<u>Plate tectonics and paleoclimate</u>
<u>6</u>	<u>Greenhouse versus Icehouse paleoclimate</u>
<u>7</u>	<u>Astronomical control on paleoclimate</u>
<u>8</u>	<u>Paleo-monsoons</u>
<u>9</u>	<u>Glacial/De-glacial cycles of the Quaternary</u>
<u>10</u>	<u>Humans and preindustrial climate</u>
<u>11</u>	<u>Causes of recent warming</u>
<u>12</u>	<u>Future climatic changes</u>

Student expectations and requirements

Tentative texts and course materials

Special equipment, materials, or library resources needed

Additional
information

Supporting
documentation

Reviewer Comments

Leslie North (leslie.north) (09/23/22 2:27 pm): Rollback: Please address comments discussed in our faculty meeting. Thanks!

Key: 9301

Course Change Request

Date Submitted: 11/22/22 8:52 am

Viewing: **PHYS 415 : Physics Teaching Seminar: Forces and Interactions**

Last approved: 11/11/22 11:01 am

Last revision: 11/22/22 8:52 am

Changes proposed by: tng17992

In Workflow

1. **PHYA Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Professional Education Council
5. Undergraduate Curriculum Committee
6. University Senate
7. Provost
8. Course Inventory

Approval Path

1. 11/22/22 8:57 am
Michael Carini
(mike.carini):
Approved for PHYA Approval
2. 11/28/22 3:31 pm
Stuart Burris
(stuart.burris):
Approved for SC Dean

History

1. Nov 11, 2022 by
Ting-Hui Lee (ting-hui.lee)

Proposed Action

~~Temporary~~

Active

Contact(s)

Name	E-mail	Phone
Ting-Hui Lee	ting-hui.lee@wku.edu	270-745-6472

Review Type

Full Review

Term for implementation	Fall 2023		
Academic Level	Undergraduate		
Course prefix (subject area)	PHYS - Physics	Course number	415
Department	Physics & Astronomy		
College	Science and Engineering		
Course title	Physics Teaching Seminar: Forces and Interactions		
Abbreviated course title	PHYS TEACH <u>SEMINAR</u> : SEM : <u>FORCES</u> INTERACTIONS		

Course description

Course developing pedagogical content knowledge for teaching introductory physics at any level, particularly 7-12 grade. Topics related to forces and interactions, including kinematics, Newton's laws, and forces (mechanical, electrical, ~~electrical and magnetic~~), ~~momentum~~ and magnetic. ~~impulse~~. The class will be taught in an interactive, hands-on format in an investigative environment to allow students to build physics concepts through practicing them. May be counted as a restricted elective for a physics major or minor that is obtaining teaching certification.

Credit hours 1

Repeatable

Yes

Number of repeats 2

For maximum credits 1

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture/Lab

CIP Code 13.1329 - 13.1329

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		PHYS 231	C	UG		
Or		PHYS 255	C	UG		

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study restriction/major? No

Classification restriction? No

Departmental Restrictions

Reason for changing the course

The temporary course proposal was submitted earlier this semester so that it can be offered in Spring 2023. We are submitting all three course proposals together for the full review in order to offer the next course in the series (PHYS 416) in Fall 2023. The rationale included in the temporary course proposal for developing these courses is attached below:

There is a great need for high school physics teachers and middle school teachers with stronger physics knowledge. The Physics Department currently offers a 3-credit hour course focused on developing pedagogical content knowledge for teaching physics, Physics 410, which currently is offered once every other year but which in recent years has had very low enrollment. We propose to replace this 3-credit-hour course with a series of one-credit-hour courses offered every semester and which can be taken in any order, replicating a successful model developed at Bridgewater State University that has increased the number of students going into high school physics teaching. Topics covered in this course sequence would include force and interactions in the first course, energy in the second, and waves and applications in the third. We expect that this change will both strengthen the preparation of pre-service teachers and help recruit additional students into physics teaching for the following reasons:

a. We expect this approach to build a stronger cohort of students planning to go into teaching physics. This will (1) provide them a place to belong, (2) provide a support network to encourage persistence, and (3) promote continued mutual support via the same network once the students are out teaching in schools, which is of particular value as few high schools employ more than one physics teacher.

- b. This will make it easier for physics students who have not yet chosen to go into physics teaching to “try it out” for one semester and, if they enjoy it, continue and pursue a career as a high school teacher.
- c. Offering a course every semester would provide greater assurance to middle school and high school physics pre-service teachers for planning their schedules.
- d. Students planning careers in academia would also benefit from taking these courses, as there is significant overlap of issues related to teaching at the high school level and to introductory college level physics. This course would not count towards graduation requirements for physics majors not pursuing teaching certification, but it would nevertheless be a valuable addition to a transcript when applying for graduate school. Further, the one-credit hour format would make it easier for students to fit it into what are generally full schedules.
- e. Sometimes high school math and (non-physics) science teachers are pressed into teaching a physics class if their school has no dedicated physics teacher. This sequence would make it easier for these teachers to fit some of these single credit hour classes into their schedules, strengthening their physics knowledge.

Is this related to other courses at WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

- SKyTeach Melissa Rudloff, March, April, and September 12, 2022
- SKyTeach Catherine Poteet, March, April, and September 12, 2022
- SKyTeach Dr. Les L. Pesterfield, September 2022

Are you seeking Colonnade approval for this course? No

Is this course part of a program that leads to teacher certificate? Yes

Learning outcomes

#	Learning outcomes
1	<u>Demonstrate the ability to design physics lessons to address common student misconceptions and difficulties related to forces and interactions.</u> Identify common student misconceptions and implement good physics lessons to address common student misconceptions and difficulties related to forces and interactions. difficulties.
2	<u>Show how to</u> explain the use <u>the</u> of the epistemic framework of the Investigative Science Learning Environment <u>to</u> te design classes for an active learning classroom.
3	<u>Explain</u> explain the role of multiple representations in physics education.

#	Learning outcomes
4	<u>Demonstrate</u> demonstrate how to write content, procedural, metacognitive, and epistemic goals for lessons.

Content outline

#	Topic
1	<u>Kinematics</u> , kinematics , Newton's laws, forces (mechanical, <u>electrical</u> , electrical and <u>magnetic</u>), magnetic), momentum and impulse .

Student expectations and requirements

Tentative texts and course materials

- Five Easy Lessons, Strategies for Successful Physics Teaching, Randall D. Knight
- Active Learning Guide, Etkina, Planinisc, & Brookes (free)
- Physics Union Mathematics, Kinematics & Dynamics Modules (free)

Special equipment, materials, or library resources needed

N/A

Additional information

Supporting documentation

[Phys415 example syllabus.docx](#)

Reviewer Comments

Course Change Request

New Course Proposal

Date Submitted: 11/22/22 8:54 am

Viewing: **PHYS 416 : Physics Teaching Seminar: Momentum and Energy**

Last revision: 11/22/22 8:54 am

Changes proposed by: tng17992

In Workflow

1. **PHYA Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Professional Education Council
5. Undergraduate Curriculum Committee
6. University Senate
7. Provost
8. Course Inventory

Approval Path

1. 11/22/22 8:57 am
Michael Carini
(mike.carini):
Approved for PHYA Approval
2. 11/28/22 3:31 pm
Stuart Burris
(stuart.burris):
Approved for SC Dean

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Ting-Hui Lee	ting-hui.lee@wku.edu	270-745-6472

Term for implementation Fall 2023

Academic Level Undergraduate

Course prefix (subject area) PHYS - Physics Course number 416

Department Physics & Astronomy

College Science and Engineering

Course title

Physics Teaching Seminar: Momentum and Energy

Abbreviated course title PHYS TEACH SEMINAR: ENERGY

Course description

Course developing pedagogical content knowledge for teaching introductory physics at any level, particularly 7-12 grade. Topics related to momentum and energy, including impulse and momentum, work and energy, conservation of energy, energy transfer and relationship between energy and forces. The class will be taught in an interactive, hands-on format in an investigative environment to allow students to build physics concepts through practicing them. May be counted as a restricted elective for a physics major or minor that is obtaining teaching certification.

Credit hours 1

Repeatable

Yes

Number of repeats 2

For maximum credits 1

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture/Lab

CIP Code 13.1329 - 13.1329

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		PHYS 231	C	UG		
Or		PHYS 255	C	UG		

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? No

Classification
restriction? No

Departmental
Restrictions

Reason for
developing the
proposed course

There is a great need for high school physics teachers and middle school teachers with stronger physics knowledge. The Physics Department currently offers a 3-credit hour course focused on developing pedagogical content knowledge for teaching physics, Physics 410, which currently is offered once every other year but which in recent years has had very low enrollment. We propose to replace this 3-credit-hour course with a series of one-credit-hour courses offered every semester and which can be taken in any order, replicating a successful model developed at Bridgewater State University that has increased the number of students going into high school physics teaching. Topics covered in this course sequence would include force and interactions in the first course, energy in the second, and waves and applications in the third. We expect that this change will both strengthen the preparation of pre-service teachers and help recruit additional students into physics teaching for the following reasons:

- a. We expect this approach to build a stronger cohort of students planning to go into teaching physics. This will (1) provide them a place to belong, (2) provide a support network to encourage persistence, and (3) promote continued mutual support via the same network once the students are out teaching in schools, which is of particular value as few high schools employ more than one physics teacher.
- b. This will make it easier for physics students who have not yet chosen to go into physics teaching to “try it out” for one semester and, if they enjoy it, continue and pursue a career as a high school teacher.
- c. Offering a course every semester would provide greater assurance to middle school and high school physics pre-service teachers for planning their schedules.
- d. Students planning careers in academia would also benefit from taking these courses, as there is significant overlap of issues related to teaching at the high school level and to introductory college level physics. This course would not count towards graduation requirements for physics majors not pursuing teaching certification, but it would nevertheless be a valuable addition to a transcript when applying for graduate school. Further, the one-credit hour format would make it easier for students to fit it into what are generally full schedules.
- e. Sometimes high school math and (non-physics) science teachers are pressed into teaching a physics class if their school has no dedicated physics teacher. This sequence would make it easier for these teachers to fit some of these single credit hour classes into their schedules, strengthening their physics knowledge.

Is this related to
other courses at

WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

SKyTeach Melissan Rudloff, March, April, and September 12, 2022

SKyTeach Catherine Poteet, March, April, and September 12, 2022

SKyTeach Dr. Les L. Pesterfield, September 2022

How many sections of this course per academic year will be offered?

one every two years

How many students per section are expected to enroll in this proposed course?

8

How many students per academic year are expected to enroll?

8

How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections:

This course is the beginning of a curriculum revision for a physics teacher track. This revision will encourage students to explore teaching at various levels as a career option, while addressing the current teacher shortage nationwide. Based on the current enrollment in the WKU SKyTeach program, and interest shown by these students, with appropriate marketing and recruitment, we believe we will be able to have at least 8 students enrolled.

Are you seeking Colonnade approval for this course? No

Is this course part of a program that leads Yes

to teacher
certificate?

Learning outcomes

#	Learning outcomes
1	Demonstrate the ability to design and implement good physics lessons to address common student misconceptions and difficulties related to momentum and energy concepts.
2	Show how to use the epistemic framework of the Investigative Science Learning Environment to design classes for an active learning classroom.
3	Explain the role of multiple representations in physics education.
4	Demonstrate how to write content, procedural, metacognitive, and epistemic goals for lessons.

Content outline

#	Topic
1	Impulse and momentum, work and energy, conservation of energy, energy transfer and relationship between energy and forces.

Student
expectations and
requirements

Tentative texts and
course materials

Five Easy Lessons, Strategies for Successful Physics Teaching, Randall D. Knight
Active Learning Guide, Etkina, Planinisc, & Brookes (free)
Physics Union Mathematics, Kinematics & Dynamics Modules (free)

Special equipment,
materials, or library
resources needed
N/A

Additional
information

Supporting
documentation

[Phys416 example syllabus.docx](#)

Reviewer Comments

Course Change Request

New Course Proposal

Date Submitted: 11/22/22 8:54 am

Viewing: **PHYS 417 : Physics Teaching Seminar: Waves, Electricity, and Magnetism**

Last revision: 11/22/22 8:54 am

Changes proposed by: tng17992

In Workflow

1. **PHYA Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Professional Education Council
5. Undergraduate Curriculum Committee
6. University Senate
7. Provost
8. Course Inventory

Approval Path

1. 11/22/22 8:57 am
Michael Carini
(mike.carini):
Approved for PHYA Approval
2. 11/28/22 3:31 pm
Stuart Burris
(stuart.burris):
Approved for SC Dean

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Ting-Hui Lee	ting-hui.lee@wku.edu	270-745-6472

Term for implementation Fall 2023

Academic Level Undergraduate

Course prefix (subject area) PHYS - Physics Course number 417

Department Physics & Astronomy

College Science and Engineering

Course title

Physics Teaching Seminar: Waves, Electricity, and Magnetism

Abbreviated course title PHYS TEACH SEMINAR: WAVES

Course description

Course developing pedagogical content knowledge for teaching introductory physics at any level, particularly 7-12 grade. Topics related to waves and their applications, including vibration and waves, wave properties, sound waves and light waves, electricity, magnetism, and wave applications in modern technologies. The class will be taught in an interactive, hands-on format in an investigative environment to allow students to build physics concepts through practicing them. May be counted as a restricted elective for a physics major or minor that is obtaining teaching certification.

Credit hours 1

Repeatable

Yes

Number of repeats 2

For maximum credits 1

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture/Lab

CIP Code 13.1329 - 13.1329

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		PHYS 231	C	UG		
Or		PHYS 255	C	UG		

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? No

Classification
restriction? No

Departmental
Restrictions

Reason for
developing the
proposed course

There is a great need for high school physics teachers and middle school teachers with stronger physics knowledge. The Physics Department currently offers a 3-credit hour course focused on developing pedagogical content knowledge for teaching physics, Physics 410, which currently is offered once every other year but which in recent years has had very low enrollment. We propose to replace this 3-credit-hour course with a series of one-credit-hour courses offered every semester and which can be taken in any order, replicating a successful model developed at Bridgewater State University that has increased the number of students going into high school physics teaching. Topics covered in this course sequence would include force and interactions in the first course, energy in the second, and waves and applications in the third. We expect that this change will both strengthen the preparation of pre-service teachers and help recruit additional students into physics teaching for the following reasons:

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- b. This will make it easier for physics students who have not yet chosen to go into physics teaching to “try it out” for one semester and, if they enjoy it, continue and pursue a career as a high school teacher.
- c. Offering a course every semester would provide greater assurance to middle school and high school physics pre-service teachers for planning their schedules.
- d. Students planning careers in academia would also benefit from taking these courses, as there is significant overlap of issues related to teaching at the high school level and to introductory college level physics. This course would not count towards graduation requirements for physics majors not pursuing teaching certification, but it would nevertheless be a valuable addition to a transcript when applying for graduate school. Further, the one-credit hour format would make it easier for students to fit it into what are generally full schedules.
- e. Sometimes high school math and (non-physics) science teachers are pressed into teaching a physics class if their school has no dedicated physics teacher. This sequence would make it easier for these teachers to fit some of these single credit hour classes into their schedules, strengthening their physics knowledge.

Is this related to
other courses at

WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

SKyTeach Melissa Rudloff, March, April, and September 12, 2022

SKyTeach Catherine Poteet, March, April, and September 12, 2022

SKyTeach Dr. Les L. Pesterfield, September 2022

How many sections of this course per academic year will be offered?

one every two years

How many students per section are expected to enroll in this proposed course?

8

How many students per academic year are expected to enroll?

8

How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections:

This course is the beginning of a curriculum revision for a physics teacher track. This revision will encourage students to explore teaching at various levels as a career option, while addressing the current teacher shortage nationwide. Based on the current enrollment in the WKU SKyTeach program, and interest shown by these students, with appropriate marketing and recruitment, we believe we will be able to have at least 8 students enrolled.

Are you seeking Colonnade approval for this course? No

Is this course part of a program that leads Yes

to teacher
certificate?

Learning outcomes

#	Learning outcomes
1	Demonstrate the ability to design and implement good physics lessons to address common student misconceptions and difficulties related to waves, electricity, and magnetism.
2	Show how to use the epistemic framework of the Investigative Science Learning Environment to design classes for an active learning classroom.
3	Explain the role of multiple representations in physics education.
4	Demonstrate how to write content, procedural, metacognitive, and epistemic goals for lessons.

Content outline

#	Topic
1	Vibration and waves, wave properties, sound waves and light waves, electricity, magnetism, and wave applications in modern technologies

Student
expectations and
requirements

Tentative texts and
course materials

Five Easy Lessons, Strategies for Successful Physics Teaching, Randall D. Knight
Active Learning Guide, Etkina, Planinisc, & Brookes (free)
Physics Union Mathematics, Kinematics & Dynamics Modules (free)

Special equipment,
materials, or library
resources needed
N/A

Additional
information

Supporting
documentation

[Phys417 example syllabus.docx](#)

Reviewer Comments

Course Change Request

Date Submitted: 11/15/22 1:06 pm

Viewing: **PSYS 462 : Fundamentals**

Neuroscience of Cognitive
Neuroscience Learning and Memory

Last revision: 11/15/22 2:50 pm

Changes proposed by: and30774

In Workflow

1. **PSYS Approval**
2. **SC Dean**
3. **SC Curriculum Committee**
4. Undergraduate Curriculum Committee
5. University Senate
6. Provost
7. Course Inventory

Catalog Pages
referencing this
course

[Department of Psychological Sciences](#)
[Psychological Sciences \(PSYS\)](#)

Approval Path

1. 11/15/22 2:51 pm
Kelly Madole
(kelly.madole):
Approved for PSYS
Approval
2. 11/28/22 3:31 pm
Stuart Burris
(stuart.burris):
Approved for SC
Dean

Proposed Action

Active

Contact(s)

Name	E-mail	Phone
Andrew Mienaltowski	andrew.mienaltowski@wku.edu	270-681-0270

Review Type

[Full Review](#)

Term for
implementation

Fall 2023

Academic Level

Undergraduate

Course prefix
(subject area)

PSYS - Psychological Sciences

Course number 462

Department

Psychological Sciences

College

Science and Engineering

Course title

Fundamentals ~~Neuroscience of Cognitive Neuroscience Learning and Memory~~

Abbreviated course FUND OF COGNITIVE NEUROSCIENCE ~~NEUROSCIENCE~~

title LEARNING MEMORY

Course description

Introduction to the neural basis of cognition, ~~learning and memory~~. Topics include the psychophysiology ~~cellular~~ and behavioral assessment ~~molecular mechanisms~~ of learning and memory, attention, language ~~neural substrates of different learning~~ and category development, decision making, ~~memory systems, impairment of learning~~ and brain-related impairment of cognitive functioning, ~~memory tied to brain disorders~~. Note: Instructor permission may be required.

Credit hours 3

Repeatable

Yes

Number of repeats 2

For maximum credits 3

Default grade type Standard Letter Alternate grade type(s)

Is this course intended to span more than one term?

No

Schedule type

Lecture

CIP Code 429999 - Psychology, Other.

Does this course have prerequisites

Yes

Prerequisites

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?
		PSYS 210	C	UG		
And		PSYS 211	C	UG		

Corequisites

Equivalent Courses

Restrictions:

College restriction? No

Field of study
restriction/major? No

Classification
restriction? No

Departmental
Restrictions

Reason for changing
the course

In its existing format, the course covers the neuroscience of learning and memory but also includes coverage of additional domains of cognitive psychology, like attention, semantic network development and application (e.g., language and category development), and behavioral strategies common to decisions. The new course title and description reflect the additional domains of cognition that (a) underlie or are antecedents to learning and memory, and (b) are measurable consequences of learning and memory. By changing the title and description of this course, we hope to better advertise it to our students as a more integrative examination of the neuroscience of cognitive processes instead of only learning and memory.

Note that the learning outcomes and content outline for the course are being newly added to CourseLeaf. They are from the original course proposal for PSYS 462, except we have substituted the terms "cognitive," "cognitive processes," and "cognition" in place of learning and memory.

Is this related to
other courses at
WKU?

No

What departments/programs have been consulted concerning potential impact (e.g. to possible duplication or conflict, changed corequisite or prerequisite for equivalent courses, etc.)? Please provide names and dates for individuals consulted.

None. This course is part of the major in Psychological Science and minor in Neuroscience housed in the Department of Psychological Sciences.

Are you seeking
Colonnade approval
for this course? No

Is this course part of
a program that leads
to teacher
certificate? No

Learning outcomes

#	Learning outcomes
<u>1</u>	<u>Identify key views and issues concerning the neural organization of cognitive processes and discuss how these have evolved over time</u>
<u>2</u>	<u>Become familiar with the general experimental approaches and methods used to study cognitive neuroscience in humans and non-human animals</u>
<u>3</u>	<u>Integrate findings in non-human animals with the neuroscience of human cognition</u>
<u>4</u>	<u>Elaborate on new and upcoming advances concerning cognition and the brain</u>

Content outline

#	Topic
<u>1</u>	<u>Historical perspectives on the neuroscience of cognition</u>
<u>2</u>	<u>Neuronal systems for cognitive functioning</u>
<u>3</u>	<u>Functional measurement of neural substrates of cognition</u>
<u>4</u>	<u>Brain-disorders that impact cognitive functioning</u>

Student expectations and requirements

Tentative texts and course materials

Special equipment, materials, or library resources needed

Additional information

Supporting documentation

Reviewer Comments