

**UNDERGRADUATE COUNCIL  
Request for Change(s)**

Originating unit requesting change \_\_\_\_\_ MATH \_\_\_\_\_

Type of Change requested:

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Course number(s)   | <input type="checkbox"/> Course prerequisite(s) | <input type="checkbox"/> Program title                   |
| <input type="checkbox"/> Course title       | <input type="checkbox"/> Drop course(s)         | <input checked="" type="checkbox"/> Program description  |
| <input type="checkbox"/> Course description | <input type="checkbox"/> Drop program(s)        | <input checked="" type="checkbox"/> Program requirements |

Semester and year change(s) take effect: \_\_\_\_\_ Spring 2021 \_\_\_\_\_

Appropriate computer abbreviation if course title is more than 30 spaces: \_\_\_\_\_ Math BA \_\_\_\_\_

Briefly summarize the change requested:

There are two proposed changes:

1. The first proposed change adds language allowing the department to waive “missing hours” if a student transfers in a course equivalent to a TCU course but that is worth fewer credit hours at the university where originally taken.
2. The second proposed change is to add an additional option to the associated requirements.

Current CIP Code (programs only):  
Does the change require a new or change in CIP code? \_\_\_ Yes X No

If yes, what is the proposed CIP code? \_\_\_\_\_  
\*for reference, please visit: <https://nces.ed.gov/ipeds/cipcode/resources.aspx?y=56>

**Catalog copy**

Present catalog copy (paste-up from catalog is acceptable).

Proposed change(s). (Include exact catalog copy as desired. Underline changes)

**Change 1**

**Change 1**

**Requirements**

The program of study requires a minimum of 28 hours, with a grade of C- or better, on a 124-hour degree consisting of:

**Requirements**

The program of study requires a minimum of 28\* hours, with a grade of C- or better, on a 124-hour degree consisting of:

[To be inserted at the bottom of the program description]

\*The requirement of 28 hours may be reduced with department permission if the student transfers credit for a course equivalent to a TCU Mathematics course

taken at a college or university that awards fewer credits for the course than does TCU. For example, if the student is awarded transfer credit for Math 10524 Calculus I from a college or university that awards 3 credit hours, then the department may allow a corresponding 1-hour reduction to 27 hours. At the department's discretion, such reductions may be accumulated to account for multiple transfer courses.

## Change 2.

One of the following:

- COSC 10403 Introduction to Programming 3
- COSC 10503 Introduction to Programming for Engineering and Science 3
- COSC 10603 Introduction to Python for Data Analytics 3
- ENGR 10573 Applied Programming Matlab 3

## Change 2.

One of:

- COSC 10403 Introduction to Programming 3
- COSC 10503 Introduction to Programming for Engineering and Science 3
- COSC 10603 Introduction to Python for Data Analytics 3
- ENGR 10573 Applied Programming Matlab 3
- PHYS 20323: Scientific Analysis & Modeling 3

1. What is the justification for the change(s) requested?

Change 1:

Increasingly students are transferring in courses that are equivalent to TCU courses in terms of material covered but for which the credit hours awarded for the course at the other university are less than the number of credit hours for the TCU course. This is most common for our calculus sequence courses Math 10524, 20524, and 30524, and our linear algebra course Math 30224, which are four-hour courses at TCU but only three-hour courses at other universities. This creates tension with the existing program descriptions which specify a certain number of Math hours based on the TCU course credit hours. Previously the department chair would waive the hours requirement, but the proposed change is intended to create a more formal process.

Change 2:

The intent of this associate requirement is for the student to take a course to obtain some basic familiarity with computer programming. The Math Department has assessed PHYS 20323, which is a new course offered by the Physics Department, to provide such an exposure comparable to the current options.

2. If applicable, explain how the change(s) will affect the current program outcomes and assessment mechanisms.

There will be no changes.

3. **Faculty Resources:** How will the unit provide faculty support for this change and any other impact this change may have on other current departmental listings.

No resources are needed.

4. **Educational Resources:** Will this change require additional resources not currently available (e.g. space, equipment, library, other)?  
If yes, list additional resources needed.

YES

NO

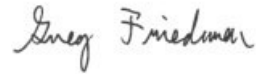
5. If this change affects other units of the University, include a statement signed by the chairperson(s) of the affected unit(s).

Change 1 is completely internal to Mathematics.

A letter from the chair of Physics supports Change 2 (please see attached).

6. If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and cross-listed units.

N/A



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Approval signature of chairperson of originating unit

DEPARTMENT OF

# Physics & Astronomy

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COLLEGE OF  
SCIENCE & ENGINEERING



Dr. Greg Friedman  
Professor and Chair  
Department of Mathematics

September 9, 2020

Dear Greg,

With this letter, I express our support for the proposal of the Department of Mathematics to add the PHYS 20323 (Scientific Analysis & Modeling) course as an associated requirement option for Mathematics majors and minors. Such addition will not cause any strain on instructor or classroom resources in our department.

Please let me know if you need any additional information.

Sincerely,

A handwritten signature in cursive script, reading "Yuri M. Strzhemechny". The signature is written in black ink and includes a large, sweeping flourish at the end.

Dr. Yuri M. Strzhemechny  
Associate Professor and Chair  
Department of Physics and Astronomy

**UNDERGRADUATE COUNCIL  
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Originating unit requesting change \_\_\_\_\_ MATH \_\_\_\_\_

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| <input type="checkbox"/> Course description | <input type="checkbox"/> Drop program(s)        | <input checked="" type="checkbox"/> Program requirements |

Semester and year change(s) take effect: \_\_\_\_\_ Spring 2021 \_\_\_\_\_

Appropriate computer abbreviation if course title is more than 30 spaces: \_\_\_\_\_ Math BA-Actuarial \_\_\_\_\_

Briefly summarize the change requested:

There are two proposed changes:

1. The first proposed change adds language allowing the department to waive “missing hours” if a student transfers in a course equivalent to a TCU course but that is worth fewer credit hours at the university where originally taken.
2. The second proposed change is to add an additional option to the associated requirements.

Current CIP Code (programs only):

Does the change require a new or change in CIP code? \_\_\_ Yes \_\_\_ X \_\_\_ No

If yes, what is the proposed CIP code? \_\_\_\_\_

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Catalog copy

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Proposed change(s). (Include exact catalog copy as desired. Underline changes)

Change 1.

Change 1.

Mathematics Courses

The program of study requires a minimum of 31 hours, with a grade of C- or better, on a 124-hour degree.

Mathematics Courses

The program of study requires a minimum of 31\* hours, with a grade of C- or better, on a 124-hour degree.

[To be inserted at the bottom of the program description]

\*The requirement of 31 hours may be reduced with department permission if the student transfers credit for a course equivalent to a TCU Mathematics course taken at a college or university that awards fewer credits for the course than does TCU. For example, if the student is awarded transfer credit for Math 10524 Calculus I from a college or university that awards 3

credit hours, then the department may allow a corresponding 1-hour reduction to 30 hours. At the department's discretion, such reductions may be accumulated to account for multiple transfer courses.

## Change 2.

One of:

COSC 10403 Introduction to Programming 3

COSC 10503 Introduction to Programming for  
Engineering and Science 3

COSC 10603 Introduction to Python for Data  
Analytics 3

ENGR 10573 Applied Programming Matlab 3

## Change 2.

One of:

COSC 10403 Introduction to Programming 3

COSC 10503 Introduction to Programming for  
Engineering and Science 3

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ENGR 10573 Applied Programming Matlab 3

PHYS 20323: Scientific Analysis & Modeling 3

1. What is the justification for the change(s) requested?

Change 1:

Increasingly students are transferring in courses that are equivalent to TCU courses in terms of material covered but for which the credit hours awarded for the course at the other university are less than the number of credit hours for the TCU course. This is most common for our calculus sequence courses Math 10524, 20524, and 30524, and our linear algebra course Math 30224, which are four-hour courses at TCU but only three-hour courses at other universities. This creates

tension with the existing program descriptions which specify a certain number of Math hours based on the TCU course credit hours. Previously the department chair would waive the hours requirement, but the proposed change is intended to create a more formal process.

Change 2:

The intent of this associate requirement is for the student to take a course to obtain some basic familiarity with computer programming. The Math Department has assessed PHYS 20323, which is a new course offered by the Physics Department, to provide such an exposure comparable to the current options.

2. If applicable, explain how the change(s) will affect the current program outcomes and assessment mechanisms.

There will be no changes.

3. **Faculty Resources:** How will the unit provide faculty support for this change and any other impact this change may have on other current departmental listings.

No resources are needed.

4. **Educational Resources:** Will this change require additional resources not currently available (e.g. space, equipment, library, other)?  YES  
If yes, list additional resources needed.  NO

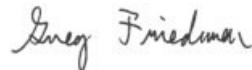
5. If this change affects other units of the University, include a statement signed by the chairperson(s) of the affected unit(s).

Change 1 is completely internal to Mathematics.

A letter from the chair of Physics supports Change 2 (please see attached).

6. If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and cross-listed units.

N/A



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Approval signature of chairperson of originating unit



**UNDERGRADUATE COUNCIL  
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| <input type="checkbox"/> Course description | <input type="checkbox"/> Drop program(s)        | <input checked="" type="checkbox"/> Program requirements |

Semester and year change(s) take effect: \_\_\_\_\_ Spring 2021 \_\_\_\_\_

Appropriate computer abbreviation if course title is more than 30 spaces: \_\_\_\_\_ Math BS \_\_\_\_\_

Briefly summarize the change requested:

There are two proposed changes:

1. The first proposed change adds language allowing the department to waive “missing hours” if a student transfers in a course equivalent to a TCU course but that is worth fewer credit hours at the university where originally taken.
2. The second proposed change is to add an additional option to the associated requirements.

Current CIP Code (programs only):

Does the change require a new or change in CIP code? \_\_\_ Yes \_\_\_X\_\_\_ No

If yes, what is the proposed CIP code? \_\_\_\_\_

\*for reference, please visit: <https://nces.ed.gov/ipeds/cipcode/resources.aspx?y=56>

Catalog copy

Present catalog copy (paste-up from catalog is acceptable.

Proposed change(s). (Include exact catalog copy as desired. Underline changes)

Change 1.

Change 1.

Mathematics Courses

The program of study requires a minimum of 46 hours, with a grade of C- or better, on a 124-hour degree.

Mathematics Courses

The program of study requires a minimum of 46\* hours, with a grade of C- or better, on a 124-hour degree.

[To be inserted at the bottom of the program description]

\*The requirement of 46 hours may be reduced with department permission if the student transfers credit for a course equivalent to a TCU Mathematics course

taken at a college or university that awards fewer credits for the course than does TCU. For example, if the student is awarded transfer credit for Math 10524 Calculus I from a college or university that awards 3 credit hours, then the department may allow a corresponding 1-hour reduction to 45 hours. At the department's discretion, such reductions may be accumulated to account for multiple transfer courses.

## Change 2.

One of the following:

COSC 10403 Introduction to Programming 3

COSC 10503 Introduction to Programming for Engineering and Science 3

COSC 10603 Introduction to Python for Data Analytics 3

ENGR 10573 Applied Programming Matlab 3

## Change 2.

One of the following:

COSC 10403 Introduction to Programming 3

COSC 10503 Introduction to Programming for Engineering and Science 3

COSC 10603 Introduction to Python for Data Analytics 3

ENGR 10573 Applied Programming Matlab 3

PHYS 20323: Scientific Analysis & Modeling 3

1. What is the justification for the change(s) requested?

Change 1:

Increasingly students are transferring in courses that are equivalent to TCU courses in terms of material covered but for which the credit hours awarded for the course at the other university are less than the number of credit hours for the TCU course. This is most common for our calculus sequence courses Math 10524, 20524, and 30524, and our linear algebra course Math 30224, which are four-hour courses at TCU but only three-hour courses at other universities. This creates tension with the existing program descriptions which specify a certain number of Math hours based on the TCU course credit hours. Previously the department chair would waive the hours requirement, but the proposed change is intended to create a more formal process.

**Change 2:**

The intent of this associate requirement is for the student to take a course to obtain some basic familiarity with computer programming. The Math Department has assessed PHYS 20323, which is a new course offered by the Physics Department, to provide such an exposure comparable to the current options.

2.

If applicable, explain how the change(s) will affect the current program outcomes and assessment mechanisms.

There will be no changes.

3. **Faculty Resources:** How will the unit provide faculty support for this change and any other impact this change may have on other current departmental listings.

No resources are needed.

4. **Educational Resources:** Will this change require additional resources not currently available (e.g. space, equipment, library, other)?  YES  
If yes, list additional resources needed.  NO

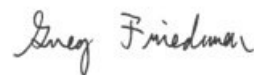
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Change 1 is completely internal to Mathematics.

A letter from the chair of Physics supports Change 2 (please see attached).

6. If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and cross-listed units.

N/A



---

Approval signature of chairperson of originating unit

**UNDERGRADUATE COUNCIL  
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| <input type="checkbox"/> Course description | <input type="checkbox"/> Drop program(s)        | <input checked="" type="checkbox"/> Program requirements |

Semester and year change(s) take effect: \_\_\_\_\_ Spring 2021 \_\_\_\_\_

Appropriate computer abbreviation if course title is more than 30 spaces: \_\_\_\_\_ Math BS-Actuarial \_\_\_\_\_

Briefly summarize the change requested:

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Current CIP Code (programs only):

Does the change require a new or change in CIP code? \_\_\_ Yes \_\_\_ X \_\_\_ No

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**Catalog copy**

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Proposed change(s). (Include exact catalog copy as desired. Underline changes)

**Change 1**

**Mathematics Courses**

The program of study requires a minimum of 46 hours, with a grade of C- or better, on a 124-hour degree.

**Change 1**

**Mathematics Courses**

The program of study requires a minimum of 46\* hours, with a grade of C- or better, on a 124-hour degree.

[To be inserted at the bottom of the program description]

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One of:

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PHYS 20323: Scientific Analysis & Modeling 3

### 1. What is the justification for the change(s) requested?

Change 1:

Increasingly students are transferring in courses that are equivalent to TCU courses in terms of material covered but for which the credit hours awarded for the course at the other university are less than the number of credit hours for the TCU course. This is most common for our calculus sequence courses Math 10524, 20524, and 30524, and our linear algebra course Math 30224, which are four-hour courses at TCU but only three-hour courses at other universities. This creates tension with the existing program descriptions which specify a certain number of Math hours

based on the TCU course credit hours. Previously the department chair would waive the hours requirement, but the proposed change is intended to create a more formal process.

Change 2:

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2. If applicable, explain how the change(s) will affect the current program outcomes and assessment mechanisms.

There will be no changes.

3. **Faculty Resources:** How will the unit provide faculty support for this change and any other impact this change may have on other current departmental listings.

No resources are needed.

4. **Educational Resources:** Will this change require additional resources not currently available (e.g. space, equipment, library, other)?  YES  
If yes, list additional resources needed.  NO

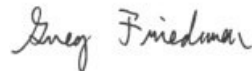
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Change 1 is completely internal to Mathematics.

A letter from the chair of Physics supports Change 2 (please see attached).

6. If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and cross-listed units.

N/A



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Approval signature of chairperson of originating unit

**UNDERGRADUATE COUNCIL  
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Semester and year change(s) take effect: \_\_\_\_\_ Spring 2021 \_\_\_\_\_

Appropriate computer abbreviation if course title is more than 30 spaces: \_\_\_\_\_ Math Minor \_\_\_\_\_

Briefly summarize the change requested:

There are two proposed changes:

1. The first proposed change adds language allowing the department to waive “missing hours” if a student transfers in a course equivalent to a TCU course but that is worth fewer credit hours at the university where originally taken.
2. The second proposed change is to add an additional option to the associated requirements.

Current CIP Code (programs only):

Does the change require a new or change in CIP code? \_\_\_ Yes X No

If yes, what is the proposed CIP code? \_\_\_\_\_

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**Catalog copy**

**Present catalog copy (paste-up from catalog is acceptable.**

**Proposed change(s). (Include exact catalog copy as desired. Underline changes)**

**Change 1.**

The program of study requires a minimum of 18 hours, with a grade of C- or better, consisting of:

**Change 1.**

The program of study requires a minimum of 18\* hours, with a grade of C- or better, consisting of:

[To be inserted at the bottom of the program description]

\*The requirement of 18 hours may be reduced with department permission if the student transfers credit for a course equivalent to a TCU Mathematics course taken at a college or university that awards fewer

credits for the course than does TCU. For example, if the student is awarded transfer credit for Math 10524 Calculus I from a college or university that awards 3 credit hours, then the department may allow a corresponding 1-hour reduction to 17 hours. At the department's discretion, such reductions may be accumulated to account for multiple transfer courses.

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PHYS 20323: Scientific Analysis & Modeling 3

1. What is the justification for the change(s) requested?

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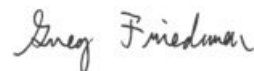
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N/A



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Approval signature of chairperson of originating unit

**UNDERGRADUATE COUNCIL  
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Semester and year change(s) take effect: \_\_\_\_\_ Spring 2021 \_\_\_\_\_

Appropriate computer abbreviation if course title is more than 30 spaces: \_\_\_\_\_ Math Minor-Actuarial \_\_\_\_\_

Briefly summarize the change requested:

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Current CIP Code (programs only):

Does the change require a new or change in CIP code? \_\_\_ Yes X No

If yes, what is the proposed CIP code? \_\_\_\_\_

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No resources are needed.

4. **Educational Resources:** Will this change require additional resources not currently available (e.g. space, equipment, library, other)?  
If yes, list additional resources needed.

YES

NO

## 5. If this change affects other units of the University, include a statement signed by the chairperson(s) of the affected unit(s).

This change is completely internal to Mathematics.

## 6. If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and cross-listed units.

N/A

*Greg Friedman*

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Approval signature of chairperson of originating unit