

**MONTHLY REPORT: September 2017 - COMMITTEE ON CURRICULUM**

**To:** Joel Kuszai, Academic Senate Steering Committee  
**From:** Lorena B. Ellis, Chairperson, Committee on Curriculum  
**Date:** September 30, 2017  
**Subject:** September Monthly Report for the October, 2017 Senate  
**CC:** College Archives (CWilliams@qcc.cuny.edu)

The Committee on Curriculum has voted to send the following recommendations to the Academic Senate:  
3 New courses  
2 experimental courses – for information only  
3 Program Revisions

**1. NEW COURSES**

**PHYSICS DEPARTMENT**

Departmental approval: 5-17-2017

PH-401 General Calculus Physics A  
3 class hours 3 recitation hours 3 laboratory hours 5 credits  
Pre-requisite: MA-440  
Co-requisite: MA-441

Course Description for college catalog:  
This course integrates calculus concepts and covers fundamental principles of physics in areas of mechanics and heat, including kinematics, classical laws of motion, equilibrium, conservation laws, impulse and momentum, work, mechanical energy, rotational motion, fluids, simple harmonic motion, heat and thermodynamics.

Rationale:  
We are moving from a 3 semester sequence to a 2 semester sequence for calculus physics to improve transferability within CUNY. CCNY, York, Queens, Hunter, Brooklyn, John Jay, NYC Tech, KBCC, and BMCC currently all use a two semester calculus physics sequence.

PH-402 General Calculus Physics B  
3 class hours 3 recitation hours 3 laboratory hours 5 credits  
Pre-requisite: MA-440  
Co-requisite: MA-441

Course Description for college catalog:  
This course integrates calculus concepts and covers fundamental principles of physics in areas of mechanics and heat, including kinematics, classical laws of motion, equilibrium, conservation laws, impulse and momentum, work, mechanical energy, rotational motion, fluids, simple harmonic motion, heat and thermodynamics.

**Rationale:**

We are moving from a 3 semester sequence to a 2 semester sequence for calculus physics to improve transferability within CUNY. CCNY, York, Queens, Hunter, Brooklyn, John Jay, NYC Tech, KBCC, and BMCC currently all use a two semester calculus physics sequence.

**MATHEMATICS AND COMPUTER SCIENCE**

Departmental approval: 5-17-2017

**MA 010 ALP Elementary Algebra**

2 class hours, 0 credits

Pre-requisite: None

Co-requisite: MA 119

**Course Description for college catalog:**

Signed numbers, polynomials, geometric concepts, graphing, and solutions of linear and quadratic equations by graphing and algebraic methods, word problems, slope and  $\square$ -intercept, factoring and its applications, in addition to necessary support needed to pass subject matter covered in MA-119.

**Rationale:**

The course will allow students with a high placement score but below that required to be exempt from MA-010 to take both MA-119 College Algebra with the support of MA-010 ALP and satisfy remedial requirements established by CUNY.

**2 EXPERIMENTAL COURSEs – FOR INFORMATION ONLY****MA-021 Quantitative Reasoning (experimental)**

4 class hours, 1 laboratory hour, 0 credits

Pre-requisite: None

Co-requisite: None

**Course Description for college catalog:**

This developmental course provides an alternative pathway to the college level liberal arts and science course MA-321 Mathematics in Contemporary Society. The course focuses on basic numeracy and quantitative reasoning skills necessary to make sense of the world around us. Topics covered include signed numbers, decimals and fractions; proportional reasoning; inequalities; interpreting graphs and charts; averages; linear functions; and translating word problems into mathematical expressions. This course **cannot** be used as a pre-requisite for MA-119 College Algebra and is not suited for Science, Technology, Engineering, or Math (STEM) students.

**Rationale:**

Currently, some proficiency in Algebra is required in mathematics entry-level courses in all majors. On a 10-25-2016 memo, CUNY Executive VC of Academic Affairs requested mathematics departments across the university to offer at least one alternative pathway for students who plan to pursue non-Algebra-intensive studies. In response, the Mathematics and Computer Science department at Queensborough Community College designated MA-321 as an alternative entry-level course for non-STEM students. Students needing remediation will start in the prerequisite course MA-021 or will go directly into MA-321 with additional support, MA-321 ALP, depending on their scores on the placement exam. These two entry points into MA-321 offer an alternative to what is currently established, which is that MA-010 Elementary Algebra (remedial course) is the pre-requisite for MA-321. See Attachment A.

**MA-321 ALP Mathematics in Contemporary Society (Corequisite Course, Experimental)**

2 class hours, 0 Credits

Pre-requisite: None

Co-requisite: MA-321

Course Description for college catalog:

Fundamentals of statistics, graphing, solving linear equations by graphing and algebraic methods, word problems, slope and  $\square$ -intercept, applications, in addition to necessary support needed to pass subject matter covered in MA-321.

Rationale:

On a 10-25-2016 memo, CUNY Executive VC of Academic Affairs requested mathematics departments across the university to offer at least one alternative pathway for students who plan to pursue non-Algebra-intensive studies. In response, the Mathematics and Computer Science department at Queensborough Community College designated MA-321 as an alternative entry-level course for non-STEM students. Students needing remediation will start in the prerequisite course MA-021 or will go directly into MA-321 with additional support, MA-321 ALP, depending on their scores on the placement exam. See Attachment A.

## PROGRAM REVISIONS

### PHYSICS DEPARTMENT

Switching from 3 semester to 2 semester calculus physics sequence

Physics A.S. in Engineering Science (approval by the department 08-24-2017)

Here is the information to include in a proposal to revise an existing degree or certificate program:

1. Department:	Physics		
2. Program name:	A.S. in Engineering Science		
3. Program Code:	01521		
4. HEGIS number:	5609		
5. Date approved by the department	08	24	2017
	Month	Day	Year
6. Date the changes will be effective (if approved)	01	01	2018
	Month	Day	Year
7.	<b>All text or items that will be deleted or changed should be marked with a <del>strikethrough</del>.</b>		
8.	<b>All new text, courses, credits, etc. should be marked by <u>underlining</u>.</b>		
9.	<b>All text or items that will be deleted or changed should be marked with a <del>strikethrough</del>.</b>		
10.	<b>Show the whole set of program requirements in a From/To format (see example below)</b>		
11.	<b>Add all Program notes in 11A</b>		
	<b>Add all Course notes in 11B (Number your notes).</b>		

From:		To:	
Common Core	Credits	Common Core	Credits
REQUIRED CORE: I. A: English Composition I, II (ENGL 101 and ENGL 102)	6	REQUIRED CORE: I. A: English Composition I, II (ENGL 101 and ENGL 102)	6
REQUIRED CORE: I. B: MA 441 <sup>1</sup> Analytic Geometry & Calculus I	4	REQUIRED CORE: I. B: MA 441 <sup>1</sup> Analytic Geometry & Calculus I	4
REQUIRED CORE: I. C: CH 151 <sup>1</sup> General Chemistry I	4.5	REQUIRED CORE: I. C: CH 151 <sup>1</sup> General Chemistry I	4.5
FLEXIBLE CORE: II. A: World Cultures & Global Issues (Select one course from II.A)	3	FLEXIBLE CORE: II. A: World Cultures & Global Issues (Select one course from II.A)	3

FLEXIBLE CORE: II. B: U.S. Experience in Its Diversity (Select one course from II.B)	3	FLEXIBLE CORE: II. B: U.S. Experience in Its Diversity (Select one course from II.B)	3
FLEXIBLE CORE: II. C: Creative Expression (Select one course from II.C)	3	FLEXIBLE CORE: II. C: Creative Expression (Select one course from II.C)	3
FLEXIBLE CORE: II. D: Individual & Society (Select one course from II.D)	3	FLEXIBLE CORE: II. D: Individual & Society (Select one course from II.D)	3
FLEXIBLE CORE: II. E: Scientific World: <del>PH 411<sup>+</sup> Calculus Physics I</del>	<del>3.5</del>	FLEXIBLE CORE: II. E: Scientific World <u>PH 401<sup>1</sup> Calculus Physics A</u>	<u>5</u>
FLEXIBLE CORE: II: A, B, C, D or E: <del>PH 412<sup>+</sup> Calculus Physics II</del>	<del>3</del>	FLEXIBLE CORE: II: A, B, C, D or E	<u>5</u>
Subtotal	<del>33</del>	Subtotal	<u>36.5</u>
Major		Major	
MA 442 and 443 Analytical Geometry II and III 8	8	MA 442 and 443 Analytical Geometry II and III 8	8
MA 451 Differential Equations	4	MA 451 Differential Equations	4

PH 413 Calculus Physics III	3.5		
EE 101 Engineering Design I	1	EE 101 Engineering Design I	1
EE 204 Electric Circuits	3	EE 204 Electric Circuits	3
EE 103 Computer-aided Analysis for	2	EE 103 Computer-aided Analysis for Electrical	2
Computer programming options (select one):	3-4	Computer programming options (select one):	3-4
PH 240 Computerized Physical Measurement using Graphical Programming		PH 240 Computerized Physical Measurement using Graphical Programming	
OR ET 575 Introduction to C++ Programming Design and Implementation		OR ET 575 Introduction to C++ Programming Design and Implementation	
OR ET 505 Introduction to C++ Object Oriented Programming		OR ET 505 Introduction to C++ Object Oriented Programming	
OR CS 101 Algorithmic Problem solving I		OR CS 101 Algorithmic Problem solving I	
Subtotal	24.5-25.5	Subtotal	21-22
Engineering Advised Electives		Engineering Advised Electives	
<b>Chemical Engineering:</b>	6.5-7.5	<b>Chemical Engineering:</b>	6.5-7.5
CH 152, Gen. Chem. II; CH 251, Organic Chem. I; CH 252, Org. Chem. II		CH 152, Gen. Chem. II; CH 251, Organic Chem. I; CH 252, Org. Chem. II	
<b>Civil Engineering:</b>		<b>Civil Engineering:</b>	
PH 416, Thermodynamics; MT 345, Strength of Materials; MA 461, Linear Algebra		PH 416, Thermodynamics; MT 345, Strength of Materials; MA 461, Linear Algebra	
<b>Electrical Engineering:</b>		<b>Electrical Engineering:</b>	
EE 205, Linear Systems Analysis; PH 416, Thermodynamics; CH 152, Gen. Chem. II; ET 540, Digital Computer Theory I		EE 205, Linear Systems Analysis; PH 416, Thermodynamics; CH 152, Gen. Chem. II; ET 540, Digital Computer Theory I	
<b>Mechanical Engineering:</b>		<b>Mechanical Engineering:</b>	
MT 293, Parametric Computer-aided Design Drafting; PH 416, Thermodynamics; PH 440, Modern Physics; MA 461, Linear Algebra; CH 152, Gen. Chem. II		MT 293, Parametric Computer-aided Design Drafting; PH 416, Thermodynamics; PH 440, Modern Physics; MA 461, Linear Algebra; CH 152, Gen. Chem. II	
Total	65	Total	65
<b>11A. Program Note:</b>			
<b>From:</b>		<b>To:</b>	
<b>11B. Course Note (number your notes):</b>			
<b>From:</b>		<b>To:</b>	

1. Students are required to take STEM Variants in 1B, 1C, and 2E; if students do not take STEM variants in common core, they will have to take additional credits to complete their degree requirements.

1. Students are required to take particular STEM Variants in 1B, 1C, and 2E; if students do not take the listed STEM variants in common core, they will have to take additional credits to complete their degree requirements.

**12. Write a Rationale for all the changes**

We are moving from a 3 semester sequence to a 2 semester sequence for calculus physics to improve transferability within CUNY. CCNY, York, Queens, Hunter, Brooklyn, John Jay, NYC Tech, KBCC, and BMCC currently all use a two semester calculus physics sequence. The minor change to the course note makes the meaning clearer to the students.

**13. Write a Summary for all the changes**

The three course sequence of introductory calculus-based physics (PH-411, PH-412, and PH-413) is being replaced by a two-semester sequence (PH-401 and PH-402). The total number of credits and contact hours remains the same.

**14. If the program revision includes course revisions or new courses, submit the appropriate Course Revision form and/or New Course Proposal Form, along with the Syllabus and Course Objectives form.**

**15. If courses will be deleted from the program, make clear whether the courses are to be deleted from the department's offerings as well.**

The courses will not be deleted from the department's offerings.

**16. Explain briefly how students currently in the program will be able to complete the requirements**

PH-412 and PH-413 will be offered for two semesters after PH-411 is discontinued. If there is a sufficient number of students who have passed PH-411 and PH-412 but not PH-413, PH-413 will be offered the third semester after PH-411 is discontinued.

**Chemistry A.S. in Science for Forensics**

(Approval by the department August, 23, 2017)

Here is the information to include in a proposal to revise an existing degree or certificate program:

1. **Department:** Chemistry
2. **Program name:** A.S. in Science for Forensics
3. **Program Code:** 01521
4. **HEGIS number:** 5619
5. **Date approved by the department**

08	23	2017
Month	Day	Year
6. **Date the changes will be effective (if approved)**

01	01	2018
Month	Day	Year
7. **All text or items that will be deleted or changed should be marked with a ~~strikethrough~~.**

8. All new text, courses, credits, etc. should be marked by underlining.
9. All text or items that will be deleted or changed should be marked with a ~~strikethrough~~.
10. Show the whole set of program requirements in a From/To format (see example below)
11. Add all Program notes in 11A  
Add all Course notes in 11B (Number your notes).

From:		To:	
Common Core	Credits	Common Core	Credits
REQUIRED CORE: I. A: English Composition I, II (ENGL 101 and ENGL 102)	6	REQUIRED CORE: I. A: English Composition I, II (ENGL 101 and ENGL 102)	6
REQUIRED CORE: I. B: MA 441 <sup>1</sup> Analytic Geometry & Calculus I	4	REQUIRED CORE: I. B: MA 441 <sup>1</sup> Analytic Geometry & Calculus I	4
REQUIRED CORE: I. C: CH 151 <sup>1</sup> General Chemistry I	4.5	REQUIRED CORE: I. C: CH 151 <sup>1</sup> General Chemistry I	4.5
FLEXIBLE CORE: II. A to II. D: select one from 2A, 2B, 2C or 2D <sup>2</sup>	9	FLEXIBLE CORE: II. A to II. D: select one course each from three categories among 2A, 2B, 2C or 2D <sup>2</sup>	9
FLEXIBLE CORE: II. E: Scientific World: BI 201 General Biology I	4	FLEXIBLE CORE: II. E: Scientific World BI 201 General Biology I	4
FLEXIBLE CORE: II: A, B, C, D or E:	4.5	FLEXIBLE CORE: II: A, B, C, D or E:	4.5
<b>Subtotal</b>	<b>32</b>	<b>Subtotal</b>	<b>32</b>
<b>Major</b>		<b>Major</b>	
CH 251 Organic Chemistry I	5	CH 251 Organic Chemistry I	5
CH 252 Organic Chemistry II	5	CH 252 Organic Chemistry II	5
BI 202 General Biology II	4	BI 202 General Biology II	4
MA 442 Analytic Geometry & Calculus II	4	MA 442 Analytic Geometry & Calculus II	4
<del>PH 411 Calculus Physics I</del>	<del>3.5</del>	PH 401 Calculus Physics A	<u>5</u>
<del>PH 412 Calculus Physics II</del>	<del>3</del>	PH 402 Calculus Physics B	<u>5</u>
PH 413 Calculus Physics III	3.5		
<b>Subtotal</b>	<b>28</b>	<b>Subtotal</b>	<b>28</b>
<b>Total</b>	<b>60<sup>3</sup></b>	<b>Total</b>	<b>60<sup>3</sup></b>

<b>11A. Program Note:</b> <b>From:</b>	<b>To:</b>
<b>11B. Course Note (number your notes):</b> <b>From:</b> 2. Students are required to take particular courses in some areas of the Common Core that fulfill both general education and major requirements. If students do not take the required courses in the Common Core, they will have to take additional credits to complete their degree requirements. 3. Whichever Flexible Core category is not fulfilled at Queensborough will be completed at John Jay, as stipulated by the waiver granted by CUNY. 4. In addition to the required 60-credit program at Queensborough Community College, students will need to take a four-credit John Jay course, Chemistry 220, Quantitative Analysis, to enter John Jay as juniors. This course is a prerequisite for junior-year laboratories at John Jay and will be offered each summer at John Jay as a bridge course into the B.S. in Forensic Science.	<b>To:</b> 1. Students are required to take particular courses in some areas of the Common Core that fulfill both general education and major requirements. If students do not take the required courses in the Common Core, they will have to take additional credits to complete their degree requirements. 2. Whichever Flexible Core category is not fulfilled at Queensborough will be completed at John Jay, as stipulated by the waiver granted by CUNY. 3. In addition to the required 60-credit program at Queensborough Community College, students will need to take a four-credit John Jay course, Chemistry 220, Quantitative Analysis, to enter John Jay as juniors. This course is a prerequisite for junior-year laboratories at John Jay and will be offered each summer at John Jay as a bridge course into the B.S. in Forensic Science.

**12. Write a Rationale for all the changes**

We are moving from a 3 semester sequence to a 2 semester sequence for calculus physics to improve transferability within CUNY. CCNY, York, Queens, Hunter, Brooklyn, John Jay, NYC Tech, KBCC, and BMCC currently all use a two semester calculus physics sequence. The minor change to the course note makes the meaning clearer to the students.

The wording about flexible core 2A to 2D was reworded to indicate the students are required to take three classes rather than just one.

**13. Write a Summary for all the changes**

The three course sequence of introductory calculus-based physics (PH-411, PH-412, and PH-413) is being replaced by a two-semester sequence (PH-401 and PH-402). The total number of credits and contact hours remains the same.

**14. If the program revision includes course revisions or new courses, submit the appropriate Course Revision form and/or New Course Proposal Form, along with the Syllabus and Course Objectives form.**

**15. If courses will be deleted from the program, make clear whether the courses are to be deleted from the department's offerings as well.**

The courses will not be deleted from the department's offerings.

**16. Explain briefly how students currently in the program will be able to complete the requirements**

PH-412 and PH-413 will be offered for two semesters after PH-411 is discontinued. If there is a sufficient number of students who have passed PH-411 and PH-412 but not PH-413, PH-413 will be offered the third semester after PH-411 is discontinued.



**MATH + PHYSICS DEPARTMENT**

Addition of CS204 to the LS-AS program (Math)

Addition of PH401 and PH402 to the LS-AS program (Physics)

1. Department:	<b>Mathematics and Computer Science &amp; Physics</b>		
2. Program name:	A.S. Liberal Arts & Sciences (Mathematics & Science)		
3. Program Code:	01523		
4. HEGIS number:	5649		
5. Date approved by the department	10	05	16
	<b>Month</b>	<b>Day</b>	<b>Year</b>
6. Date the changes will be effective (if approved)	01	27	18
	<b>Month</b>	<b>Day</b>	<b>Year</b>
7.	<b>All text or items that will be deleted or changed should be marked with a <del>strikethrough</del>.</b>		
8.	<b>All new text, courses, credits, etc. should be marked by <u>underlining</u>.</b>		
9.	<b>All text or items that will be deleted or changed should be marked with a <del>strikethrough</del>.</b>		
10.	<b>Show the whole set of program requirements in a From/To format (see example below)</b>		
11.	<b>Add all Program notes in 11A Add all Course notes in 11B (Number your notes).</b>		

<b>From:</b> Liberal Arts & Sciences (Mathematics and Sciences) A.S. Degree		<b>To:</b> Liberal Arts & Sciences (Mathematics and Sciences) A.S. Degree	
<b>Common Core</b>	<b>Credits</b>	<b>Common Core</b>	<b>Credits</b>
REQUIRED CORE: I. A: English Composition I, II	6	REQUIRED CORE: I. A: English Composition I, II	6
REQUIRED CORE: I. B: Mathematical & Quantitative Reasoning Required: <i>MA-440 (or higher)</i>	4	REQUIRED CORE: I. B: Mathematical & Quantitative Reasoning Required: <i>MA-440 (or higher)</i>	4
REQUIRED CORE: I. C: Life & Physical Sciences Required: <i>BI-201, CH-151, PH-301 or PH-311, or <del>PH-411</del></i>	4	REQUIRED CORE: I. C: Life & Physical Sciences Required: <i>BI-201, CH-151, PH-301 or PH-311, or <u>PH-401</u></i>	4-5
FLEXIBLE CORE: II. A: World Cultures & Global Issues (Select one course from II.A)	3	FLEXIBLE CORE: II. A: World Cultures & Global Issues (Select one course from II.A)	3
FLEXIBLE CORE: II. B: U.S. Experience in Its Diversity (Select one course from II.B)	3	FLEXIBLE CORE: II. B: U.S. Experience in Its Diversity (Select one course from II.B)	3
FLEXIBLE CORE: II. C: Creative Expression (Select one course from II.C)	3	FLEXIBLE CORE: II. C: Creative Expression (Select one course from II.C)	3
FLEXIBLE CORE: II. D: Individual & Society (Select one course from II.D)	3	FLEXIBLE CORE: II. D: Individual & Society (Select one course from II.D)	3
FLEXIBLE CORE: II. E: Scientific World: Select one from <i>BI-201, CH-151 (or higher), MA-443, MA-451, MA-461, CS-101, CS-201, CS-203, PH-301 or PH-311, <del>PH-411</del></i>	4	FLEXIBLE CORE: II. E: Scientific World: Select one from <i>BI-201, CH-151 (or higher), MA-443, MA-451, MA-461, CS-101, CS-201, CS-203, <u>CS-204</u>, PH-301 or PH-311, <u>PH-401</u></i>	4-5

FLEXIBLE CORE: II: <u>A</u> , <u>B</u> , <u>C</u> , <u>D</u> or <u>E</u> : Select one from <i>BI-201, CH-151 (or higher), MA-443, MA-451, MA-461, CS-101, CS-201, CS-203, PH-301 or PH-311, <b>PH-411</b></i>	4	FLEXIBLE CORE: II: <u>A</u> , <u>B</u> , <u>C</u> , <u>D</u> or <u>E</u> : Select one from <i>BI-201, CH-151 (or higher), MA-443, MA-451, MA-461, CS-101, CS-201, CS-203, <b>CS-204</b>, PH-301 or PH-311, <b>PH-401</b></i>	4-5
<b>Subtotal</b>	<b>34</b>	<b>Subtotal</b>	<b>34-35</b>
<b>Major</b>		<b>Major</b>	
MA 441 (or higher level)	4		
Select one from BI-202, BI-356, BI-453, CH-152 (or higher), PH-302 or PH-312, or <b>PH-412 and PH-413</b> <sup>1</sup> (student may not receive credit for both PH 302 or PH-312 and <del>combination of PH-412 and PH-413</del> ), MA-442 (or higher)	8-11	Select one from BI-202, BI-356, BI-453, CH-152 (or higher), PH-302 or PH-312, or <b>PH-402</b> <sup>1</sup> (student may not receive credit for both PH 302 or PH-312 and <b>PH-402</b> ), MA-442 (or higher)	8-11
Select one from BI-202, CH-152 (or higher), CS-101(or higher), MA-442 (or higher level), PH-302 or PH-312, or <b>PH-412 and PH-413</b>		Select one from BI-202, CH-152 (or higher), CS-101(or higher), MA-442 (or higher level), PH-302 or PH-312, or <b>PH-402</b> ( student may not receive credit for both PH-302 or PH-312 and <b>PH-402</b> )	
Concentration <sup>3</sup> (range depends on course choices in major above)	3-6	Concentration <sup>3</sup> (range depends on course choices in major above)	3-6
<b>Subtotal</b>	<b>18</b>	<b>Subtotal</b>	<b>18</b>
<b>Additional Major Requirements</b>		<b>Additional Major Requirements</b>	
SP 211 <sup>2</sup> (if taken in common core, additional course in concentration recommended)	3	SP 211 <sup>2</sup> (if taken in common core, additional course in concentration recommended)	3
History or Social Science (if taken in common core, additional course in concentration recommended)	3	History or Social Science (if taken in common core, additional course in concentration recommended)	3
HE-101 (HE-102 may be substituted)	1	HE-101 (HE-102 may be substituted)	1
One course in Physical Education from PE-400 or 500 series or one course from DAN-100 series (1 credit courses only)	1	One course in Physical Education from PE-400 or 500 series or one course from DAN-100 series (1 credit courses only)	1
<b>Subtotal</b>	<b>8</b>	<b>Subtotal</b>	<b>8</b>
<b>Total</b>	<b>60</b>	<b>Total</b>	<b>60</b>
<b>11A. Program Note:</b>			
<b>From:</b>		<b>To:</b>	

<p>All students must complete two (2) WI designated classes to fulfill degree requirements.</p> <p>*The following courses are gateway major courses for Biology majors across CUNY: BI 201, 202, CH 151, 152, and MA 440.</p> <p>Students following the AS Liberal Arts and Science (Math and Science) concentration <b>may not apply</b> the following courses toward their <i>concentration</i>:</p> <ul style="list-style-type: none"> <li>• Biology- 110, 115, 120, 130, 131, <b>132</b>, 140, 160, 170, 171, 250, 340, 341, 505</li> <li>• Chemistry- 101, 102, 105, 110, 111, 120, 121, 127, 128, 130, 131</li> </ul>	<p>All students must complete two (2) WI designated classes to fulfill degree requirements.</p> <p>*The following courses are gateway major courses for Biology majors across CUNY: BI 201, 202, CH 151, 152, and MA 440.</p> <p>Students following the AS Liberal Arts and Science (Math and Science) concentration <b>may not apply</b> the following courses toward their <i>concentration</i>:</p> <ul style="list-style-type: none"> <li>• Biology- 110, 115, 120, 130, 131, <b>132</b>, 140, 160, 170, 171, 250, 340, 341, 505</li> <li>• Chemistry- 101, 102, 105, 110, 111, 120, 121, 127, 128, 130, 131</li> </ul>
	<p>Students must take at least one two-course sequence in each of two different disciplines (i.e., BI 201, 202; CH 151, 152; PH 301, 302; CS 101, 201 or 203 or 204; MA 441, 442).</p>
<p><b>11B. Course Note (number your notes):</b>  <b>From:</b>  <sup>1</sup> Student may not receive credit for both PH-302 or PH-312 and combination of PH-412 and PH-413 <b><u>PH-402</u></b>.  <sup>2</sup> If taken in the Common Core, an additional course in concentration is recommended.  <sup>3</sup> With permission of the Department of Mathematics</p>	<p><b>To:</b>  <sup>1</sup> Student may not receive credit for both PH-302 or PH-312 and <b><u>PH-402</u></b>.  <sup>2</sup> If taken in the Common Core, an additional course in concentration is recommended.  <sup>3</sup> With permission of the Department of Mathematics and Computer Science students in the TIMEQCC secondary</p>

**12. Write a Rationale for all the changes**

1.	Addition of CS 204 to the A.S. Liberal Arts & Sciences (Mathematics & Science) program: CS 204 is a new course established under a collaboration with Queens College aim to facilitate transfer of QCC students into their Computer Science program. CS 204 can be an alternative to CS 203 but if the LS degree allows, it can be taken in addition to CS 203, which is the preferred prerequisite background for transfer students at Queens College.
2.	Addition of a program note, reflecting the original intention of the above revision: <i>Students must take at least one two-course sequence in each of two different disciplines (i.e., BI 201, 202; CH 151, 152; PH 301, 302; CS 101, 201 or 203 or 204; MA 441, 442).</i>
3.	Addition of a program note that was in the original program but which was inadvertently omitted in the previous revision: <b><i>**With permission of the Department of Mathematics and Computer Science students in the TIMEQCC secondary mathematics program may count credits for EDUC-101 and INTE-221 toward the concentration.</i></b>
4.	We are moving from a 3 semester sequence to a 2 semester sequence for calculus physics to improve transferability within CUNY. CCNY, York, Queens, Hunter, Brooklyn, John Jay, NYC Tech, KBCC, and BMCC currently all use a two semester calculus physics sequence.

**13. Write a Summary for all the changes**

	<p>Addition of a new course to the A.S. Liberal Arts &amp; Sciences (Mathematics &amp; Science) program. Addition of two program notes.</p> <p>The proposed additions were submitted for approved to the other relevant departments: Physics and Chemistry approved on 3/29/17; Biological Sciences &amp; Geology approved on 3/30/17.</p> <p>The three course sequence of introductory calculus-based physics (PH-411, PH-412, and PH-413) is being replaced by a two-semester sequence (PH-401 and PH-402).</p>
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**14. If the program revision includes course revisions or new courses, submit the appropriate Course Revision form and/or New Course Proposal Form, along with the Syllabus and Course Objectives form.**

The new course, CS 204, has already received all approvals and appears in the current college catalog.

**15. If courses will be deleted from the program, make clear whether the courses are to be deleted from the department's offerings as well.**

N/A

**16. Explain briefly how students currently in the program will be able to complete the requirements**

The proposed revisions do not change program requirements per se. Now students have the option of taking CS 204 as an alternative to CS 203 (an existing course in the program).

PH-412 and PH-413 will be offered for two semesters after PH-411 is discontinued. If there is a sufficient number of students who have passed PH-411 and PH-412 but not PH-413, PH-413 will be offered the third semester after PH-411 is discontinued.