TO: The College Community

FROM: Patricia Toney  
Vice President of Academic Affairs

SUBJECT: ACADEMIC MATTERS

DATE: April 15, 2014

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Final approval has been given to the academic matters acted upon at the April 8, 2014 meeting of the Learning Council.

1. **School of Business, Engineering & Technology - Kathy Rentsch**
   
   - Course Revision - APA 263 Digital Video Fundamentals
     - Motion: Steve Rayshick
     - Motion carried
       - Remove the prerequisite of APA 161 Digital Photography from APA 263 Digital Video Fundamentals
       - Effective Fall 2014

   **APA 263 Digital Video Fundamentals   3 credits**
   This course gives students an overview of the theoretical, aesthetic, and practical elements of digital video pre-production, production, and post-production. Through a series of creative exercises, lectures, and classroom critiques, students gain and understanding of the fundamental skills required in storyboarding, scripting, directing, shooting, lighting, and editing digital video productions for a variety of purposes and audiences. Students complete assignments using industry-standard software and hardware.

   - Course Revision – CSC 109 Computer Science II
     - Motion: Steve Rayshick
     - Motion carried
       - Change prerequisite from CSC 108 to CSC 106 or CSC 108

   **CSC 109 Computer Science II   4 Credits**
   This course is the second in a three-course sequence that provides students with a foundation in computer science. The progression of software engineering topics continues in CSC 108,
where greater emphasis is placed on abstraction and sound software design principles, engaging students in the development of secure software components that solve a wide range of related problems and can be reused. The students determine the necessary elements of simple ADTs (such as a counter or a date) and then construct them; by their very nature, these components must be well-documented to encourage reuse. Additionally the students write assertions such as preconditions and post conditions describing each class method, thereby encouraging students to think deeply about a simple problem before coding. After coding, the components must be well-tested, and therefore the use of test plans and test drivers are practiced. These activities reinforce the notion of constructing software from well-defined, independent pieces and complement the study of using existing library classes and APIs in software solutions.

**Prerequisite: CSC 106 or CSC 108. F/S/SU**  
Four hours lecture

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- **Course Revision – CSC 208 Introduction to Architecture and Assembly Language**
  - Motion: Maureen Woolhouse
  - Motion carried
    - Change the prerequisite from CSC 107 to CSC 107 or CSC 109

**CSC 208 Introduction to Architecture and Assembly Language  4 Credits**

This course presents computers from the circuit level to higher levels of abstraction. Students work from logical gates, digital circuits, and memory, through the execution model, machine and assembly languages, and the interaction with high-level languages. Topics include the organization of computers, number representatives, assembly language instruction sets and addressing modes, procedure calling and the stack, low-level input/output, and linkers and loaders. Students write and debug programs in assembly language.

**Prerequisite: CSC 107 or CSC 109. F/S/SU**

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- **Course Revision - CSC 207 Programming with Objects**
  - Motion: Steve Rayshick
  - Motion carried
    - Revise the prerequisite from CSC 107 to CSC 107 or CSC 109

**CSC 207 Programming with Objects 3 Credits**

As a continuation of CSC 107, this course expands on the notion of inheritance to present and use polymorphism as an integral part of the object-oriented programming paradigm. This course emphasizes use and design of object interfaces as supported by abstract classes and Java interface; and presents and illustrates generics methods and classes using the standard collection application program interfaces (APIs) provided by the Java™ language, under UNIX® and Windows/Mac operating systems. Students learn iterators and expanded looping mechanisms in the context of collection APIs and their implementation; and use recursive methods and data in introductory implementations of basic abstract data types.
Students program extensively in the languages chosen for the course. **Prerequisite: CSC 107 or CSC 109. F**

- Course Revision - CSC 211 Programming with Data Structures
  - Motion: Meg Yoder
  - Motion carried
    - Revise the prerequisite from CSC 109 or CIS 225 to CSC 107 or CSC 109 or CIS 225
    - *note* pg. 18 in grid CSC 211 prerequisite should read CSC 109

**CSC 211 Programming with Data Structures  4 Credits**

This course introduces data structures using object-oriented programming techniques and basic algorithm analysis. It covers basic structures such as lists, queues, and stack; binary trees and balanced trees; hash tables and priority queues; and set and graph representation. Students use algorithms to survey and apply recursion techniques; apply common sorting and searching algorithms such as Quicksort; graph traversal algorithms such as Floyd’s and Dijkstra’s; and explore depth-first traversals, divide and conquer, backtracking, and greedy algorithms. Students develop and test a variety of programs in the languages chosen for the course. **Prerequisite: CSC 107 or CSC 109 or CIS 225. F/S/SU**

- Proposal for Closure – CIS – Programming Option [CIPR]
  - Motion: Steve Rayshick
  - Motion carried
    - Close the CIS Programming Option [CIPR]

- Proposal for Closure – CIS – Web Development Option [CIWB]
  - Motion: John Stazinski
  - Motion carried
    - Close the CIS Web Development Option [CIWB]

2. **School of Healthcare - Linda LeFave**

- Course Revision - ALH 136 Phlebotomy/EKG Technician Clinical Co-operative Externship
  - Motion: Linda LeFave
  - Motion carried
    - Change the prerequisite from ALH 134 to a corequisite of ALH 134

**ALH 136 Phlebotomy/EKG Technician Clinical Co-operative Externship**

The externship prepares students for a career as a phlebotomy/EKG technician. Students learn phlebotomy skills, EKG skills and how to use reference materials. Students then work in a laboratory and learn how to perform as a phlebotomist; they also work in an EKG clinic and learn how to perform as an EKG technician. Students practice their communication skills, familiarize
themselves with the layout of the laboratory and its daily and monthly operation; Students also familiarize themselves with the layout of the EKG clinic and its daily and monthly operation. Students experience data entry and third party billing, inventory and quality control checks. Students also practice writing a resume, interviewing techniques and professional skills.

**Co-requisite: ALH 134**

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3. **School of Math & Science - Dr. Leslie Bolinger Horton**

- New Course - BTT 101 Introduction to Biotechnology Approved
  - Motion: Leslie Bolinger Horton
  - Motion carried
    - Create a course: BTT 101 Introduction to Biotechnology
    - Effective Summer 1 2014

**Introduction to Biotechnology**  
3 credits

This course examines the basic tenets of biotechnology including the scientific method are presented through readings on the commercialization of recombinant DNA technology to produce therapeutic proteins and on the drug discovery process. Students discuss the ethics, public policy issues, patent issues, career opportunities, and therapeutic promises of recombinant DNA technology. Students also participate in a virtual drug discovery program to elucidate issues in drug discovery such as target identification, lead discovery and optimization, candidate selection, ethical clinical trials, and drug markets.

**Prerequisite:** ENG 100 or appropriate placement score, MAT 095 with a “C” or better on the departmental final exam or appropriate placement score.

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- Certificate Revision - Biotechnology Technician Certificate Approved
  - Motion: Leslie Bolinger Horton
  - Amended Motion carried
    - Introduce a new required course, BTT 101 Introduction to Biotechnology, to semester 1
    - Move CHM 105 General Chemistry I from semester 1 to semester 2
    - Increasing credits from 25 to 28
    - *Effective Fall 2014*

See grid page 47

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- Program Revision - General Studies Biotechnology Option Approved
  - Motion: Leslie Bolinger Horton
  - Amended Motion carried
    - To revise the General Studies Biotechnology Option Program as follows:
      - Add a summer semester 3. The current semester 3 will be the proposed semester 4 and the current semester 4 will be the proposed semester 5.
      - Add BTT 101 Introduction to Biotechnology to semester 1.
      - Move MAT 122 to proposed semester 3.
- Move history elective from current semester 3 to proposed semester 3.
- Move a science elective from current semester 4 to proposed semester 4.
- Remove elective from current semester 3.
- Effective Fall 2014

See grid page 51
1. Course Number and Name (current): APA 263 Digital Video Fundamentals

2. Originator: Prof. George Fitch/Program Coordinator Date: 3/12/14

3. School Dean: Kathy Rentsch Date: 3/12/14

4. The requested change (motion) for governance consideration is as follows:
   
   Remove the prerequisite of APA 161 Digital Photography from APA 263 Digital Video Fundamentals

5. Effective Date: Fall 2014

6. Recommended by the B.E.T. School Date: 3/27/14
   Comments:

7. AA Leadership Team: Date: 4/1/14
   Recommended:    Not Recommended: _______
   Comments:

8. VP/Academic Affairs: Date: 4/1/14
   Recommended:    Not Recommended: _______
   Comments:

9. Learning Council: Date: 4/8/14
   Recommended:    Not Recommended: _______
   Comments:

10. VP/Academic Affairs: Date: 4/8/14
    Approved:    Not Approved: _______
    Comments:
# COURSE REVISION PROPOSAL

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**Course Discipline or Department:** Applied Arts  
**School:** Business, Engineering & Technology

**Current Course Number:** APA 263  
**Current Course Name:** Digital Video Fundamentals

**Current Course Description (as it appears in the college catalog):**

APA 263 Digital Video Fundamentals  
3 credits  
This course gives students an overview of the theoretical, aesthetic, and practical elements of digital video pre-production, production, and post-production. Through a series of creative exercises, lectures, and classroom critiques, students gain and understanding of the fundamental skills required in storyboarding, scripting, directing, shooting, lighting, and editing digital video productions for a variety of purposes and audiences. Students complete assignments using industry-standard software and hardware.  
**Prerequisites:** APA 161.

**Proposed Description (include all proposed changes):**

APA 263 Digital Video Fundamentals  
3 credits  
This course gives students an overview of the theoretical, aesthetic, and practical elements of digital video pre-production, production, and post-production. Through a series of creative exercises, lectures, and classroom critiques, students gain and understanding of the fundamental skills required in storyboarding, scripting, directing, shooting, lighting, and editing digital video productions for a variety of purposes and audiences. Students complete assignments using industry-standard software and hardware.  
**Prerequisites:** None.

**Rationale for the change:**

After teaching 2 sections of the course, it has become apparent that the Prerequisite of APA 163 Digital Photography is unnecessary. The two courses are both introductory courses to different technology approaches for the same basic formal art concepts.

**Provide a description of any change in course content.**

None

**Does the course revision affect another department?** Please confer with the coordinator of the affected department. No

**Affected department(s):**

If this change affects a program grid, please submit a current and proposed program grid for each program affected

*attached

**Please submit a syllabus to your dean with all of the revisions included.**

*attached
## Applied Arts – Associate in Science (Program Code: GA) - CURRENT

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<th>Grade</th>
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**Total credits required** 65

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**Program Notes:**

* ART 101 Art Appreciation, ART 111 History of Art I, ART 112 History of Art II, ART 121 Contemporary Art, ART 211 History of Graphic Design.

** May not have an ART designation.

- The APA Program is a high demand program and restricts day class offerings to 40 accepted full-time day students per academic year, beginning in the fall semester. Accepted students must register simultaneously for all 4 APA courses required in Semesters 1-3, and for both APA courses required in Semester 4. Early application is recommended.

- The APA Program teaches sophisticated design software packages. Course content is kept current with software upgrades in each new academic year. There is a three-year time limit for students to take sequential courses that are prerequisites in the program curriculum. Students will then be required to pass software proficiency tests to advance in program course offerings.

- APA students are strongly encouraged, but not required, to have access to a computer (preferably Mac) with related software.

- Students enrolled in APA 161 will be required to purchase a digital camera.
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**Program Notes:**

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- APA students are strongly encouraged, but not required, to have access to a computer (preferably Mac) with related software.
- Students enrolled in APA 161 will be required to purchase a digital camera.
Digital Video Fundamentals

STUDENT COURSE OUTLINE

COURSE TITLE: APA 263 Digital Video Fundamentals

SEMESTER HOURS: 3          CLOCK HOURS: 3

Professor         Office Location:

COURSE DESCRIPTION: APA 263 Digital Video Fundamentals
This course gives students an overview of the theoretical, aesthetic, and practical elements of
digital video pre-production, production, and post-production. Through a series of creative
exercises, lectures, and classroom critiques, students will gain an understanding of the
fundamental skills required in storyboarding, scripting, directing, shooting, lighting, and editing
digital video productions for a variety of purposes and audiences. Assignments are completed
using industry-standard software and hardware.

PREREQUISITES: None

COURSE OBJECTIVES:
1) Understand the design and technical knowledge of creating digital video media.

2) Integrate Digital audio and video technologies and processes (file formats, editing techniques,
applying simple effects and processes.

3) Understand the processes involved in Digital video production technologies and processes
(workflow, software tools, rendering, optimizing for video)

4) Understand the effective usage of Video shooting techniques and practices (Storyboards, shot
lists, camera movement, lens selection, framing, and color balancing)

5) To effectively learn Video capturing and resource management (techniques for successful
capturing, naming conventions, file management, backing up)

6) To organize and update projects for creation using Non-linear video editing techniques
(simple edits, transitions, fades, titles).

7) Understand the effective delivery formats and mediums (MPEG, DVD, QuickTime, AVI,
Vector video, streaming, NTSC, and PAL).

8) Integrate knowledge of Macintosh computer file and format systems and industry-level
software that integrates multimedia and video production.

General education outcomes:

1. Communicate through clear, logically presented works and spoken presentations.

2. Think critically by analyzing and evaluating information pertinent to the field of study.
Digital Video Fundamentals

3. Solve problems by adapting knowledge gained to new tasks and identifying relevant solution strategies.

4. Analyze data and information, by retrieving, evaluating and presenting information from a range of sources.

5. Use Information Technology for both accessing information and creating computer-based artifacts.

TEACHING PROCEDURE
Class time is divided between lecture, discussion, demonstrations, research, oral presentations and practical explorations, with studio/lab periods. Lectures and discussion present perceptual and conceptual theory, while the studio/lab allows students the opportunity to apply this knowledge technologically using Macintosh computer systems and the integration of design, web and multimedia software programs. Individual direction and evaluation is provided with group critiques. Professional electronic portfolio development is emphasized. Visiting lectures by Design professionals and field trips to their places of business are structured to enhance the educational experience.

TOPICAL OUTLINE:

MODULE 1 Development of storyboard and scripting techniques. Illustrative drawings, layout, storyboard sequence and narrative scripting design for video pre-production.

MODULE 2 Preparation of video shooting techniques (camera angles and position) based on scripting and storyboard narrative.

MODULE 3 Finished video clips, interviews, stills, and sound choices to be incorporated into individual Video presentation.

Final video presentation: Finished video and audio edited presentation for functionality and design impact

ACADEMIC EXPECTATIONS:

1. Attendance - students should attend all classes (ON TIME) because instruction is based on prior class discussion. Arrangements should be made by the student with the instructor on how to obtain class information and current assignments. More than three (3) unexcused absences will result in lowering of class grade. After 3 unexcused absences, student grade will be reduced one letter grade per unexcused absence.

2. Students will be expected to work on designs and specific assignments during and outside of class (20 hours of open labs time is provided each week).

3. The student must submit all assignments exploring the concepts covered in modules, for grading. A complete list of assignments will be available for review. No late assignments will be accepted. Students must keep current assignments in a folder available for viewing on due date in case of absence. A final portfolio of all works and final statement will be submitted at the end of term for review.

4. Criteria for grading: Demonstrate clear understanding of concepts presented (i.e. appropriate presentation of work itself). Participation in class (working in the studio...
Digital Video Fundamentals

classroom and participation in reviews, discussions and critiques), completion of the assignments required. Grades are determined by the quality of the specific designs, worksheets and quizzes, research projects, and final portfolio presentation.

5. This course will be structured as a working graphics environment. Regarding this standard a certain attitude of professionalism is required. The time in class will be used effectively and wisely with respect for your peers. Assignments not submitted on deadline will not be accepted. You will receive a '0' for the particular project. Missing three critiques will result in a failing grade for the course. Exceptional situations will be considered.

EVALUATION:
1) Module 1 - Successful development of storyboard and scripting techniques. Illustrative drawings, layout, storyboard sequence and narrative scripting design for pre-production critiquing is worth (15 points) or 15% of final grade.
2) Module 2 - Preparation of video shooting techniques (camera angles and position) based on scripting and storyboard narrative worth (15 points or 15% of final grade).
3) Module 3 - Finished video clips, interviews, stills, and sound choices to be incorporated into individual Video presentation. Finished design concepts for video editing to prepare final video presentation are worth (20 points) or 20% of final grade.
4) Final video presentation - Finished video and audio edited presentation for functionality and design impact is worth (40 points) or 40% of final grade.
5) Class participation is worth (10 points) or 10% of final grade.
6) A total of 100 points are possible in a grading scale of 1 - 100 points.


MATERIALS LIST:
Suitable video capture equipment
Suitable storage for large multimedia files (100 gig or better)

Students should consider purchasing their own Macintosh computer and design software packages over the course of their enrollment in the Applied Arts Program.
COURSE REVISION PROPOSAL

1. Course Number and Name (current) : CSC 109  Computer Science II

2. Originator: Hao Loi  Date: 03.24.14

3. School Dean: Kathy Rentsch  Date: 03.24.14

4. The requested change (motion) for governance consideration is as follows:

   Change prerequisite from CSC 108 to CSC 106 or CSC 108

5. Effective Date: Fall 2014

6. Recommended by the _____BET____ School  Date: 3/27/14

   Comments:

7. AA Leadership Team:

   Date: 4/1/14

   Recommended:  □  Not Recommended: □

   Comments:

8. VP/Academic Affairs: ___________________________  Date: 4/1/14

   Recommended:  □  Not Recommended: □

   Comments:

9. Learning Council: __________  Date: 4/8/14

   Recommended:  □  Not Recommended: □

   Comments:

10. VP/Academic Affairs: ___________________________  Date: 4/8/14

   Approved:  □  Not Approved: □

   Comments:
2013-2014  
QUINSIGAMOND COMMUNITY COLLEGE  
COURSE REVISION PROPOSAL

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Course Discipline or Department: Computer Science  
School: Business, Engineering & Technology

Current Course Number: CSC 109

Current Course Name: Computer Science II

Current Course Description (as it appears in the college catalog):
CSC 109 Computer Science II  4 Credits

This course is the second in a three-course sequence that provides students with a foundation in computer science. The progression of software engineering topics continues in CSC 108, where greater emphasis is placed on abstraction and sound software design principles, engaging students in the development of secure software components that solve a wide range of related problems and can be reused. The students determine the necessary elements of simple ADTs (such as a counter or a date) and then construct them; by their very nature, these components must be well-documented to encourage reuse. Additionally the students write assertions such as pre-conditions and post-conditions describing each class method; thereby encouraging students to think deeply about a simple problem before coding. After coding, the components must be well-tested, and therefore the use of test plans and test drivers are practiced. These activities reinforce the notion of constructing software from well-defined, independent pieces and complement the study of using existing library classes and APIs in software solutions.

Prerequisite: CSC 108, F/S/SU

Four hours lecture

Proposed Description (include all proposed changes):
CSC 109 Computer Science II  4 Credits

This course is the second in a three-course sequence that provides students with a foundation in computer science. The progression of software engineering topics continues in CSC 108, where greater emphasis is placed on abstraction and sound software design principles, engaging students in the development of secure software components that solve a wide range of related problems and can be reused. The students determine the necessary elements of simple ADTs (such as a counter or a date) and then construct them; by their very nature, these components must be well-documented to encourage reuse. Additionally the students write assertions such as pre-conditions and post-conditions describing each class method; thereby encouraging students to think deeply about a simple problem before coding. After coding, the components must be well-tested, and therefore the use of test plans and test drivers are practiced. These activities reinforce the notion of constructing software from well-defined, independent pieces and complement the study of using existing library classes and APIs in software solutions.

Prerequisite: CSC 106 or CSC 108, F/S/SU

Four hours lecture

Rationale for the change:  
Reflects curriculum revisions approved at December 2013 Learning Council

Provide a description of any change in course content.  
N/A

Does the course revision affect another department? Please confer with the coordinator of the affected department.  
Affected department(s)

If this change affects a program grid, please submit a current and proposed program grid for each program affected. See attached.

Please submit a syllabus to your dean with all of the revisions included.
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

1. Course Number and Name (current) : CSC 208  Introduction to Architecture and Assembly Language

2. Originator: Hao Loi  Date: 3/27/2014

3. School Dean: Kathy Rentsch  Date: 3/27/2014

4. The requested change (motion) for governance consideration is as follows:
   • Change prerequisite from CSC 107 to CSC 107 or CSC 109

5. Effective Date: Fall 2014

6. Recommended by the __B.E.T.__ School  Date: 3/27/14
   Comments:
   ________________________________

7. AA Leadership Team: ____________________________  Date: 4/1/14
   Recommended: ☑  Not Recommended: ________
   Comments: _______________________

8. VP/Academic Affairs: ____________________________  Date: 4/1/14
   Recommended:  ________  Not Recommended: ________
   Comments: _______________________

9. Learning Council: _______________________________  Date: 4/8/14
   Recommended: ☑  Not Recommended: ________
   Comments: _______________________

10. VP/Academic Affairs: ____________________________  Date: 4/8/14
    Approved: ☑  Not Approved: ________
    Comments: _______________________


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<tr>
<td>Current Course Name: Introduction to Architecture and Assembly Language</td>
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Current Course Description (as it appears in the college catalog):

CSC 208 Introduction to Architecture and Assembly Language  
4 Credits

This course presents computers from the circuit level to higher levels of abstraction. Students work from logical gates, digital circuits, and memory, through the execution model, machine and assembly languages, and the interaction with high-level languages. Topics include the organization of computers, number representatives, assembly language instruction sets and addressing modes, procedure calling and the stack, low-level input/output, and linkers and loaders. Students write and debug programs in assembly language.

Prerequisite: CSC 107 or CSC 109. F/S/SU

Proposed Description (include all proposed changes):

CSC 208 Introduction to Architecture and Assembly Language  
4 Credits

This course presents computers from the circuit level to higher levels of abstraction. Students work from logical gates, digital circuits, and memory, through the execution model, machine and assembly languages, and the interaction with high-level languages. Topics include the organization of computers, number representatives, assembly language instruction sets and addressing modes, procedure calling and the stack, low-level input/output, and linkers and loaders. Students write and debug programs in assembly language.

Prerequisite: CSC 107 or CSC 109. F/S/SU

Rationale for the change:

This reflects approved curriculum changes from December 2013.

Provide a description of any change in course content.

NA

Does the course revision affect another department? Please confer with the coordinator of the affected department.

Affected department(s) _________ NA _________

If this change affects a program grid, please submit a current and proposed program grid for each program affected. See Attached.

Please submit a syllabus to your dean with all of the revisions included.
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

1. Course Number and Name (current) : CSC 207 Programming with Objects

2. Originator: Hao Loi Date: 3/27/2014

3. School Dean: Kathy Rentsch Date: 3/27/2014

4. The requested change (motion) for governance consideration is as follows:
   Change prerequisite from CSC 107 to CSC 107 or CSC 109

5. Effective Date: Fall 2014

6. Recommended by the B.E.T. School Date: 3/27/14
   Comments:

7. AA Leadership Team: Date: 4/1/14
   Recommended: ________ Not Recommended: ________
   Comments: ____________________________

8. VP/Academic Affairs: Date: 4/1/14
   Recommended: ________ Not Recommended: ________
   Comments: ____________________________

9. Learning Council: Date: 4/8/14
   Recommended: √ Not Recommended: ________
   Comments: ____________________________

10. VP/Academic Affairs: Date: 4/8/14
   Approved: ________ Not Approved: ________
   Comments: ____________________________
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<tr>
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**CSC 207 Programming with Objects**  
3 Credits

As a continuation of CSC 107, this course expands on the notion of inheritance to present and use polymorphism as an integral part of the object-oriented programming paradigm. This course emphasizes use and design of object interfaces as supported by abstract classes and Java interface; and presents and illustrates generics methods and classes using the standard collection application program interfaces (APIs) provided by the Java™ language, under UNIX® and Windows/Mac operating systems. Students learn iterators and expanded looping mechanisms in the context of collection APIs and their implementation; and use recursive methods and data in introductory implementations of basic abstract data types. Students program extensively in the languages chosen for the course.

**Prerequisite:** CSC 107 or CSC 109. F

**Proposed Description (include all proposed changes):**

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**CSC 207 Programming with Objects**  
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As a continuation of CSC 107, this course expands on the notion of inheritance to present and use polymorphism as an integral part of the object-oriented programming paradigm. This course emphasizes use and design of object interfaces as supported by abstract classes and Java interface; and presents and illustrates generics methods and classes using the standard collection application program interfaces (APIs) provided by the Java™ language, under UNIX® and Windows/Mac operating systems. Students learn iterators and expanded looping mechanisms in the context of collection APIs and their implementation; and use recursive methods and data in introductory implementations of basic abstract data types. Students program extensively in the languages chosen for the course.

**Prerequisite:** CSC 107 or CSC 109. F

**Rationale for the change:**

Reflects curriculum revisions approved at December 2013 Learning Council.

**Provide a description of any change in course content.**

NA

**Does the course revision affect another department? Please confer with the coordinator of the affected department.**

Affected department(s) ________________

**If this change affects a program grid, please submit a current and proposed program grid for each program affected.**  
No Grids are affected.

**Please submit a syllabus to your dean with all of the revisions included.**
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

1. Course Number and Name (current): CSC 211 Programming with Data Structures

2. Originator: Hao Loi Date: 3/27/2014

3. School Dean: Kathy Rentsch Date: 3/27/2014

4. The requested change (motion) for governance consideration is as follows:

   1. Change prerequisite from CSC 109 or 225 to CSC 107 or CSC 109 or CIS 225

5. Effective Date: Fall 2014

6. Recommended by the ___School ___ Comments: __________

   Date: __________

7. AA Leadership Team: __________________________ Date: __________

   Recommended: ______  Not Recommended: _______

   Comments: ______

8. VP/Academic Affairs: __________________________ Date: __________

   Recommended: ______  Not Recommended: _______

   Comments: ______

9. Learning Council: __________________________ Date: __________

   Recommended: ______  Not Recommended: _______

   Comments: ______

10. VP/Academic Affairs: __________________________ Date: __________

    Approved: ______  Not Approved: _______

    Comments: ______
# COURSE REVISION PROPOSAL

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| Course Discipline or Department: CSC | School: Bus Eng & Tech |
| Current Course Number: CSC 211 |
| Current Course Name: Programming with Data Structures |

**Current Course Description (as it appears in the college catalog):**

CSC 211 Programming with Data Structures 4 Credits

This course introduces data structures using object-oriented programming techniques and basic algorithm analysis. It covers basic structures such as lists, queues, and stack; binary trees and balanced trees; hash tables and priority queues; and set and graph representation. Students use algorithms to survey and apply recursion techniques; apply common sorting and searching algorithms such as Quicksort; graph traversal algorithms such as Floyd's and Dijkstra's; and explore depth-first traversals, divide and conquer, backtracking, and greedy algorithms. Students develop and test a variety of programs in the languages chosen for the course.

Prerequisite: CSC 109 or CIS 225. F/S/SU

**Proposed Description (include all proposed changes):**

CSC 211 Programming with Data Structures 4 Credits

This course introduces data structures using object-oriented programming techniques and basic algorithm analysis. It covers basic structures such as lists, queues, and stack; binary trees and balanced trees; hash tables and priority queues; and set and graph representation. Students use algorithms to survey and apply recursion techniques; apply common sorting and searching algorithms such as Quicksort; graph traversal algorithms such as Floyd's and Dijkstra's; and explore depth-first traversals, divide and conquer, backtracking, and greedy algorithms. Students develop and test a variety of programs in the languages chosen for the course.

Prerequisite: CSC 107 or CSC 109 or CIS 225. F/S/SU

**Rationale for the change:**

This reflects curriculum changes approved in the December 2013 Learning Council.

**Provide a description of any change in course content.**

NA

**Does the course revision affect another department? Please confer with the coordinator of the affected department.**

Affected department(s) NA

**If this change affects a program grid, please submit a current and proposed program grid for each program affected. See Attached**

Please submit a syllabus to your dean with all of the revisions included.
## COMPUTER SCIENCE TRANSFER - Associate in Science (Program Code: CS) - Current

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### Program Notes:
- Students should note that most required courses carry minimum prerequisites of CIS 111, ENG 100 and MAT 100.
- The Computer Science Transfer program utilizes a virtual laboratory. Students enrolled in all CSC courses required in this program will be required to bring their own PC/Windows laptop to class. Please see this link: [http://www.qcc.edu/academics/technology/computer-science-transfer](http://www.qcc.edu/academics/technology/computer-science-transfer)
### COMPUTER SCIENCE TRANSFER - Associate in Science (Program Code: CS) - PROPOSED

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<td>Social Science Elective</td>
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<td><strong>Semester 2</strong></td>
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<tr>
<td>English Composition &amp; Literature II</td>
<td>ENG 102</td>
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<td>Calculus II</td>
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<td>Computer Science II</td>
<td>CSC 109</td>
<td>F/S/SU</td>
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<td>CSC 106 or CSC 108</td>
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<tr>
<td>Lab Science</td>
<td>--</td>
<td>F/S/SU</td>
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<tr>
<td>Social Science Elective</td>
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<td>F/S/SU</td>
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<tr>
<td>Programming with Data Structures</td>
<td>CSC 211</td>
<td>F/S/SU</td>
<td></td>
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<td>4</td>
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<tr>
<td>Humanities Elective</td>
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<tr>
<td>Discrete Mathematics</td>
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<td>MAT 123</td>
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<td>Software Engineering I</td>
<td>CSC 212</td>
<td>F/S</td>
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<tr>
<td>Probability &amp; Statistics for Engineers and</td>
<td>MAT 237</td>
<td>F/S/SU</td>
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<td>Scientists</td>
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<tr>
<td>Introduction to Architecture and Assembly</td>
<td>CSC 208</td>
<td>F/S/SU</td>
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<tr>
<td>Language</td>
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<td>Social Science Elective</td>
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<td><strong>Total Credits Required</strong></td>
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</tbody>
</table>

**Program Notes:**
- Students should note that most required courses carry minimum prerequisites of CIS 111, ENG 100 and MAT100.
- The Computer Science Transfer program utilizes a virtual laboratory. Students enrolled in all CSC courses required in this program will be required to bring their own PC/Windows laptop to class. Please see this link: [http://www.pcc.edu/academics/technology/computer-science-transfer](http://www.pcc.edu/academics/technology/computer-science-transfer).
DEGREE PROGRAM OR CERTIFICATE PROPOSAL FOR CLOSURE

1. Program Name: CIS – Programming Option [CIPR]

2. Originator: Robert Desilets
   Date: 03/01/2014

3. School Dean: Kathy Rentsch
   Date: 3/27/2014

4. The requested change (motion) for governance consideration is as follows:
   Motion: To close the CIS Programming Option [CIPR].
   Rationale for the proposed program or certificate closure:

   The CIS Web Development Option has been enhanced and merged with the Programming Option to form the recently approved CIS Web Development & Programming Option [CIWP].

5. Effective Date: Fall 2014

6. Recommended by the B.E.I. School
   Date: 8/27/14
   Comment:

7. AA Leadership/Team:
   Date: 4/1/14
   Recommended: ☑ Not Recommended: _______
   Comments:

8. VP/Academic Affairs:
   Date: 4/1/14
   Recommended: ☑ Not Recommended: _______
   Comments:

9. Learning Council: 
   Date: 4/8/14
   Recommended: ☑ Not Recommended: _______
   Comments:

10. VP/Academic Affairs:
    Date: 4/8/14
    Approved: ☑ Not Approved: _______
    Comments:
FOR PROGRAM/CERTIFICATE CLOSURE

President: ___________________________ Date: ______________
Approved: ________ Not Approved: ________

Board of Trustees: ___________________________ Date: ______________
Approved: ________ Not Approved: ________
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

DEGREE PROGRAM OR CERTIFICATE PROPOSAL FOR CLOSURE

1. Program Name: CIS – Web Development Option [CIWB]

2. Originator: Robert Desilets  Date: 03/01/2014

3. School Dean: Kathy Rentsch  Date: 3/27/2014

4. The requested change (motion) for governance consideration is as follows:

   Motion: To close the CIS Web Development Option [CIWB].

   Rationale for the proposed program or certificate closure:

   The CIS Web Development Option has been enhanced and merged with the Web Development Option to form the recently approved CIS Web Development & Programming Option [CIWP].

5. Effective Date: Fall 2014

6. Recommended by the ______ B.E.T. _______ School  Date: 3/27/14

   Comment: ____________________________________________

   Date: __________

7. AA Leadership Team: ________________________________  Date: ______/14

   Recommended: _______  Not Recommended: ________

   Comments: _______________________________________

8. VP/Academic Affairs: ____________________________  Date: ______/14

   Recommended: _______  Not Recommended: ________

   Comments: _______________________________________

9. Learning Council: ________________________________  Date: ______/14

   Recommended: _______  Not Recommended: ________

   Comments: _______________________________________

10. VP/Academic Affairs: ______________________________  Date: ______/14

    Approved: _______  Not Approved: ________

    Comments: _______________________________________

1
FOR PROGRAM/CERTIFICATE CLOSURE

President: ___________________________ Date: _______________
Approved: _______ Not Approved: ________

Board of Trustees: ______________________ Date: ______________
Approved: _______ Not Approved: ________
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE
COURSE REVISION PROPOSAL

1. Course Number and Name (current): ALH 136 Phlebotomy/EKG Technician Clinical Co-operative Externship

2. Originator: Patricia Creelman Date: March 13, 2014

3. School Dean: Jane E. June Date: March 13, 2014

4. The requested change (motion) for governance consideration is as follows:

To change the prerequisite of ALH 134 to a co-requisite. This will enhance learning by providing concurrent didactic and lab educational experiences.

5. Effective Date: Fall 2014

6. Recommended by the Healthcare__________School Comments:

7. AA Leadership Team: ___________________________ Date: 4/8/14
   Recommended: _____ Not Recommended: _______
   Comments:

8. VP/Academic Affairs: ___________________________ Date: 4/8/14
   Recommended: _____ Not Recommended: _______
   Comments:

   Recommended: _____ Not Recommended: _______
   Comments:

10. VP/Academic Affairs: ___________________________ Date: 4/8/14
    Approved: _____ Not Approved: _______
    Comments:
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE
COURSE REVISION PROPOSAL

<table>
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<tr>
<th>Type of Revision:</th>
<th></th>
<th>Description</th>
<th>Prerequisite</th>
<th>Corequisite</th>
<th>Number</th>
<th>Name</th>
<th>#credits</th>
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</tbody>
</table>

Course Discipline or Department: Allied Health | School: Healthcare

Current Course Name: Phlebotomy/EKG Technician Clinical Co-operative Externship

Current Course Description (as it appears in the college catalog):
The externship prepares students for a career as a phlebotomy/EKG technician. Students learn phlebotomy skills, EKG skills and how to use reference materials. Students then work in a laboratory and learn how to perform as a phlebotomist; they also work in a EKG clinic and learn how to perform as a EKG technician. Students practice their communication skills, familiarize themselves with the layout of the laboratory and its daily and monthly operation; Student’s also familiarize themselves with the layout of the EKG clinic and its daily and monthly operation. Students experience data entry and third party billing, inventory and quality control checks. Students also practice writing a resume, interviewing techniques and professional skills.
Prerequisite: ALH 134

Proposed Description (include all proposed changes):
The externship prepares students for a career as a phlebotomy/EKG technician. Students learn phlebotomy skills, EKG skills and how to use reference materials. Students then work in a laboratory and learn how to perform as a phlebotomist; they also work in a EKG clinic and learn how to perform as a EKG technician. Students practice their communication skills, familiarize themselves with the layout of the laboratory and its daily and monthly operation; Student’s also familiarize themselves with the layout of the EKG clinic and its daily and monthly operation. Students experience data entry and third party billing, inventory and quality control checks. Students also practice writing a resume, interviewing techniques and professional skills.
Co-requisite: ALH 134

Rationale for the change:
To enhance learning by creating opportunity to provide concurrent didactic and lab educational experiences by requiring both courses to be taken together.

Provide a description of any change in course content.
none

Does the course revision affect another department? Please confer with the coordinator of the affected department. none
Affected department(s): ____________________________

If this change affects a program grid, please submit a current and proposed program grid for each program affected

Please submit a syllabus to your dean with all of the revisions included.
# Healthcare Certificate Phlebotomy/EKG Technician - CURRENT

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course #</th>
<th>Offered</th>
<th>Plan to Take</th>
<th>Grade</th>
<th>Credits</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>Strategies for College and Career*</td>
<td>ORT 110</td>
<td>F/S/SU</td>
<td></td>
<td></td>
<td>3</td>
<td>Coreq- ENG 090 and ENG 095 or approp place score</td>
</tr>
<tr>
<td>Introduction to English Composition**</td>
<td>ENG 100</td>
<td>F/S/SU</td>
<td></td>
<td></td>
<td>3</td>
<td>A grade of C or higher in ENG 091 or approp place score and passing the ENG 096 departmental writing final examination essay or approp place score</td>
</tr>
<tr>
<td>Introduction to Medical Terminology</td>
<td>ALH 102</td>
<td>F/S/SU</td>
<td></td>
<td></td>
<td>3</td>
<td>Coreq - ENG 100 or approp place score</td>
</tr>
<tr>
<td>Introduction to Microcomputer Applications</td>
<td>CIS 111</td>
<td>F/S/SU</td>
<td></td>
<td></td>
<td>3</td>
<td>ENG 100 or approp place score</td>
</tr>
<tr>
<td>Principles of Human Biology</td>
<td>BIO 100</td>
<td>F/S/U</td>
<td></td>
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<tr>
<td>Phlebotomy/EKG Technician</td>
<td>ALH 134</td>
<td>F/S/U</td>
<td></td>
<td></td>
<td>3</td>
<td>A grade of C or higher in ENG 091 or approp place score and passing the ENG 096 departmental writing final examination essay or approp place score.</td>
</tr>
<tr>
<td>Phlebotomy/EKG Technician Clinical Co-Operative Externship</td>
<td>ALH 136</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>ALH 134</td>
</tr>
</tbody>
</table>

Total credits required: 26

If students complete the Health Certificate, maintain a GPA of 3.0 and meet the admission requirements of a Healthcare program (see Programs of Study listing on pages 51 and 52) they will be guaranteed admission on a space available basis.

*Students are to take ORT 110 with a Healthcare focus.

**If a student places above ENG 100, PSY 101 can be substituted for ENG 100.
## Healthcare Certificate Phlebotomy/EKG Technician - PROPOSED

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course #</th>
<th>Offered</th>
<th>Plan to Take</th>
<th>Grade</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>Strategies for College and Career*</td>
<td>ORT 110</td>
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<td>Introduction to English Composition**</td>
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<td>ALH 102</td>
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<td>Coreq - ENG 100 or approp place score</td>
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<tr>
<td>Introduction to Microcomputer Applications</td>
<td>CIS 111</td>
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<td>BIO 100</td>
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<td></td>
<td></td>
<td>4</td>
<td>ENG 100 or approp place score</td>
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<tr>
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<td></td>
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<td>6</td>
<td>Coreq-ALH 134</td>
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</tbody>
</table>

Total credits required: 25

If students complete the Health Certificate, maintain a GPA of 3.0 and meet the admission requirements of a Healthcare program (see Programs of Study listing on pages 51 and 52) they will be guaranteed admission on a space available basis.

*Students are to take ORT 110 with a Healthcare focus.

**If a student places above ENG 100, PSY 101 can be substituted for ENG 100.
NEW COURSE PROPOSAL

1. Course Number and Name: BTT 101 Introduction to Biotechnology

2. Originator: Benjamin Benton  
   Date: 03/14/2014

3. School Dean: Leslie Horton  
   Date: 03/14/014

4. The requested change (motion) for governance consideration is as follows: To introduce a new course BTT 101 Introduction to Biotechnology to the Biotechnology Technician Certificate and General Studies Biotechnology Option curriculum.

5. Effective Date: Summer 1 2014

6. Recommended by the School of Math & Science  
   Date: 3/27/2014
   Comments:
   
   7. AA Leadership/Team:  
      Date: 4/1/14
   
      Recommended: ✓  
      Not Recommended: _____
   
      Comments:

   8. VP/Academic Affairs:  
      Date: 4/1/14
   
      Recommended: ✓  
      Not Recommended: _____
   
      Comments:

   9. Learning Council:  
      Date: 4/8/14
   
      Recommended: ✓  
      Not Recommended: _____
   
      Comments:

   10. VP/Academic Affairs:  
       Date: 4/8/14
   
       Approved: ✓  
       Not Approved: _____
   
       Comments:
# NEW COURSE PROPOSAL

**Course Discipline/Department:** Biotechnology  
**School:** Math and Science

**Course Number:**  
**BTT 101**

**Course Name:**  
**Introduction to Biotechnology**

Prerequisites and/or corequisites (confer with affected department coordinator):  
**ENG 100 or appropriate placement score, MAT 095 with a “C” or better on the departmental final exam or appropriate placement score.**

CIP code (check with IRaP Office): 41.0101

**Effective Term/year:**  
**Summer 1 2014**

Give a rationale for the new course. Be sure to indicate whether this course replaces another course.  
**This course is designed as an introduction to the biotechnology field for students in the biotechnology programs. While some biotechnology applications are covered in the biology and chemistry courses, these are sporadic with no underlying theme. This contextual based course will not only provide an overview of the biotechnology field, but it will also support the tools in math, reading, writing, and the scientific method that are required for successful biotechnologists. The contextual basis will focus on both the science and the business of biotechnology.**

Is the course content similar to other courses now offered?  
Yes, No **x**

If yes, attach a statement for the coordinator of the department offering the similar course.

Please indicate if this course will serve as any of the following types of electives:  
- **x** Elective  
- Discipline specific (name the discipline)  
- Program specific (name the program)  
- Multiple perspective (confer with the Liberal Arts Coordinator)

Is this course required for a program? If yes, submit a separate Program Revision Proposal or New Program Proposal. **Yes**

**Expected enrollment per term:** 15  
**Expected enrollment per year:** 30

Will any of the following be required:  
- Additional staff  
- Additional space  
- Additional equipment

Provide a rationale for any needs indicated above and include approximate cost of equipment.

**Library print and non-print resources in support of this course:** $500
Course Materials

Course number: BTT 101

Course name: Introduction to Biotechnology

Credits: 3
Lecture Hours: 3 | Lab hours: 0 | Clinic Hours: 0

General course description and prerequisites (as it will appear in the catalog):
This course examines the basic tenets of biotechnology including the scientific method are presented through readings on the commercialization of recombinant DNA technology to produce therapeutic proteins and on the drug discovery process. Students discuss the ethics, public policy issues, patent issues, career opportunities, and therapeutic promises of recombinant DNA technology. Students also participate in a virtual drug discovery program to elucidate issues in drug discovery such as target identification, lead discovery and optimization, candidate selection, ethical clinical trials, and drug markets.
Prerequisite: ENG 100 or appropriate placement score, MAT 095 with a “C” or better on the departmental final exam or appropriate placement score.

All required texts and paperbacks, including information on publisher and edition used (provide a suggested text):
The Billion Dollar Molecule: One Company’s Quest for the Perfect Drug by Barry Werth (Simon and Schuster, 1994)

Instructional Objectives (list):
The assigned readings above will be used as the context for presenting the following objectives:
- Description of the scientific method and formulation of scientific questions
- Description of recombinant DNA technology and its commercialization
- Description of the drug discovery process from project conception to market
- Analysis of simple scientific data and experiments behind the development of therapeutics
- The non-scientific issues of biotechnology such as ethics, patents and publications, academic vs industry competition, public policy, and commercial viability.
- Description of the career opportunities in the biotechnology field
- Support in the math, reading, and writing skills required for successful biotechnologists.

Teaching procedures: (provide suggested teaching methodology):
Several teaching methodologies will be employed in this course. Weekly chapter reading in the assigned books will be discussed in class and short essays based on the readings will be assigned. We will evaluate some of the scientific data which will reinforce the student’s algebra, graphing, and critical thinking skills. Students will participate in a virtual drug discovery project to examine the difficulties in bringing a new drug to market.

Course topics and/or assignments and/or required and/or supplemental reading (provide a list of suggested course topics):
First 7 weeks: Genentech: The Beginnings of Biotech
The Birth of Biotech—Genentech and Insulin
1. Background in Recombinant DNA Technology
   a. The central dogma—DNA is the blueprint for most of the structures and functions in organisms
   b. The development of recombinant DNA technology
      i. The scientists
ii. The enzymes
iii. Successful construction of recombinant DNA and introduction into bacteria
iv. Successful expression of recombinant DNA in bacteria
   a. Somatostatin

2. Commercial Venture—Insulin and Diabetes (big market, somewhat simple project, proven therapeutic target)
   a. Background of diabetes and the role of insulin
   b. Commercial Source of Insulin pre-1980
      i. Pig and bovine purification
      ii. Immunogenicity
   c. Use of recombinant DNA technology to Produce Insulin
      i. Use of synthetic DNA to make recombinant molecule
      ii. Comparing composition of recombinant human with pig/bovine insulin
   d. Development of recombinant insulin for FDA approval (scientific method and data analysis)
      i. Experiments and data to compare recombinant insulin with native insulin in cells
      ii. Experiments and data to compare recombinant insulin with native insulin in animals
      iii. Experiments and data to compare recombinant insulin with native insulin in clinical trials

3. Commercial Venture—Growth hormone and pituitary disorders (small market, harder proof-of-principle project)
   a. Background of pituitary disorders
   b. Why choose growth hormone?
   c. Use of complementary cDNA to make recombinant DNA molecules

4. Issues with Genentech Set-up
   a. Safety of recombinant DNA research
   b. Conflict of interest for professors (academic vs industry)
   c. Academic bias against “industry research” to recruit new scientists
   d. Competition with both academic world and other companies
   e. Developing and intellectual property portfolio in the context of academic publishing
   f. Return on investment—going public or being acquired.

**Next 8 weeks: The Billion Dollar Molecule: One Company’s Quest for the Perfect Drug**

Biotechnology companies may have an advantage over pharmaceutical companies in steps 2-6.

5. Introduction to Drug Discovery Process
6. Target identification and validation—
   a. Genomics
   b. Proteomics

7. Set up a *hypothesis*—If I inhibit protein X, then I can successfully treat diabetes.
8. Screen for compounds that inhibit protein X (*discovery science*)
   a. 100k’s of compounds screened in a biochemical assay
   b. Arrange in groups according to structure
   c. Biotechnology—may have technology for better/unique biochemical assays

9. Identify promising compounds from biochemical assay in cellular assay
   a. More “physiological” because looking at protein in context of cell
   b. Arrange in groups according to structure—similar to arrangement in 4?
   c. Biotechnology—may have technology for better/unique cellular assays

10. Design better molecule (“lead optimization”)
    a. Make “hybrid” molecules and test in biochemical and cell assays (*hypothesis-driven*)
    b. Look for structures that will improve efficacy in bodies (*hypothesis-driven*)
i. Increase concentration in body
ii. Remove toxic parts that will non-specifically react and hurt cells (toxicity—hypothesis-driven)
   c. Apply for patent—be as broad as possible
11. Test best candidates in animal models (hypothesis-driven)
   a. Efficacy
   b. Toxicity
   c. Biotechnology—may have technology for better/unique animal model and/or toxicity assays
   Pharmaceutical companies perform the following steps really well (13-20).
13. Manufacturing
   a. Pilot scale
   b. Large Scale
14. Clinical Trials
   a. Phase I clinical trial
      i. Safety (safe doses)—hypothesis-driven (extrapolate from animal studies)
      ii. Uncontrolled efficacy—test on patients for safety, but also monitor any efficacy
   b. Phase II clinical trial
      i. Controlled experiment for efficacy and safety (hypothesis-driven)
      ii. Find optimal dose in humans
      iii. Small scale
   c. Phase III clinical trial
      i. Large controlled experiment at best dose (hypothesis-driven)
         1. Better than current treatment?
         2. Don’t use placebos (ethics)
15. Apply for NDA
16. Drug pricing
17. Post-Market Research (Phase IV)
   a. Now working with thousands, if not millions, of patients

Other information:

Homework assignments:

I will assign homework to reinforce the ideas I present in lecture. These homework assignments range from data analysis of simple scientific graphs to short essays based on the reading. Assignments handed in late will only receive a maximum of half credit (and may receive no credit depending on the circumstances). If you are not present on the day that a homework assignment is due, it is still your responsibility to get the assignment to me on that day. You may email the assignment to me or deliver it to my office or mailbox.

Midterm and Final Exams:

The midterm and final exam will be any combination of multiple choice, short response, and essay. The final exam will be weighted with 2/3 on material covered since the midterm exam and 1/3 on the rest of the material covered during the semester. Make-up exams will only be granted if you have an excused absence (see above). If you know you will be absent before the
exam day, please let me know (I will more likely excuse the absence)! The make-up exam need not be the same as that given on exam day and can be any combination of oral questions, short response, and essay.

Grading Policy:

Your course grade will be weighted as follows:

- Midterm Exam 15%
- Final Exam 20%
- Short essay assignments 20%
- Drug Discovery Project 20%
- Other Homework 15%
- Participation in Class Discussion 10%

The official QCC Grading Scale will be used to assign final course grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>95-100</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60</td>
</tr>
<tr>
<td>A-</td>
<td>90-94</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
</tr>
<tr>
<td>D</td>
<td>63-66</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
</tr>
<tr>
<td>C-</td>
<td>70-72</td>
</tr>
<tr>
<td>D-</td>
<td>60-62</td>
</tr>
</tbody>
</table>

Academic Honesty and Plagiarism:

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Disability Services Room 246A
Voice 508-854-4471
TTY 508-854-4524

Please attach a syllabus for this new course.

List the Student Learning Outcomes for this course in the table below. Recommendations for writing SLOs can be found in the General Information for Academic Affairs Proposals document that is available on the QCC’s Intranet under Frequently Used Forms (Academic Governance Forms).

| COURSE STUDENT LEARNING OUTCOMES FOR BTT 101 Introduction to Biotechnology |
| Upon completion of the course, students will be able to: |
| 1 | Identify career opportunities in the biotechnology field |
| 2 | Describe recombinant DNA technology and its applications in biotechnology |
| 3 | Utilize the scientific method to address valid scientific questions |
| 4 | Analyze simple data graphs and tables and perform algebraic calculations underlying key drug discovery and laboratory processes |
| 5 | Evaluate in both verbal and written forms the non-scientific issues of biotechnology such as ethics, public policy, competition, patents, and commercial viability |

How does the course support general education? Using the chart below, indicate the degree or level of connection between the course and outcome as indicated here.

I – Introductory/Background – There is an indirect relationship between the course and the outcome. The outcome itself is not the focus of the course but at least one element of the course serves as a building block to the achievement of the final outcome. For example, course elements may provide the knowledge, skills or attitudes necessary for the ultimate achievement of the outcome.
M – Intermediate/Transitional - There is more of a direct relationship between the course and the outcome than Introductory. A mixture of course elements supports the final achievement of the outcome, but the final integration of knowledge, skills and attitudes necessary for its achievement is not accomplished in this course. For example, knowledge, skills and/or attitudes (at least 2 of the 3) required for achievement of the outcome may be the focus of the course or course element, but the integration of all three is not.

E – Emphasized – There is a direct relationship between the course and the outcome. At least one element of the course focuses specifically on the complex integration of knowledge, skills and attitudes necessary to perform the outcome.

<table>
<thead>
<tr>
<th>CONNECTION OF BTT 101 Introduction to Biotechnology TO GENERAL EDUCATION STUDENT LEARNING OUTCOMES</th>
<th>I,M,E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Skills: Students will write and speak effectively.</td>
<td>M</td>
</tr>
<tr>
<td>Information Literacy: Students will locate, evaluate and apply reliable and appropriate information.</td>
<td>M</td>
</tr>
<tr>
<td>Quantitative Reasoning: Students will apply the concepts and methods of mathematics to solve problems.</td>
<td>M</td>
</tr>
<tr>
<td>Scientific Reasoning: Students will relate scientific methods of inquiry to the acquisition of knowledge.</td>
<td>M</td>
</tr>
<tr>
<td>Technical Literacy: Students will utilize computer and emerging technologies effectively.</td>
<td>M</td>
</tr>
<tr>
<td>Aesthetics: Students will appreciate the variety of human experiences as expressed through the arts.</td>
<td>I</td>
</tr>
<tr>
<td>Multiple Perspectives: Students will demonstrate knowledge and appreciation of diverse cultures.</td>
<td>I</td>
</tr>
<tr>
<td>Ethics: Students will develop an awareness of personal obligations and responsibilities in one’s community of influence.</td>
<td>M</td>
</tr>
<tr>
<td>Impact of Technology: Students will reflect on the impact of scientific and technological advances on the individual, society and the environment.</td>
<td>M</td>
</tr>
<tr>
<td>Civic Literacy: Students will demonstrate awareness of the responsibilities of local, national and international citizenship.</td>
<td>I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONNECTION OF BTT 101 Introduction to Biotechnology to PROGRAM STUDENT LEARNING OUTCOMES FOR General Studies—Biotechnology Option &amp; Biotechnology Technician Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Understand the fundamental scientific principles of biotechnology</td>
</tr>
<tr>
<td>2 Demonstrate the ability to manipulate and analyze data</td>
</tr>
<tr>
<td>3 Demonstrate the ability to work effectively in a laboratory setting</td>
</tr>
</tbody>
</table>
If the course is required in a program or it is an elective in a program, please indicate how the course contributes to the Program Student Learning Outcomes. List the Program Student Learning Outcomes and indicate the degree or level of connection between the course and outcome as I, M, or E. Please delete this table if it is not applicable.

Introduction to Biotechnology

BTT 101

Instructor: Ben Benton, Ph.D. MWF 1:00-1:50 pm Room 410S
bbenton@gcc.mass.edu

Office Hours (220A-1): Phone: 508-854-2835
M/W 2:00-3:00 pm T/F 9:30-10:30 am Mailbox 425
or by appointment

Course Description:

This course examines the basic tenets of biotechnology including the scientific method are presented through readings on the commercialization of recombinant DNA technology to produce therapeutic proteins and on the drug discovery process. Students discuss the ethics, public policy issues, patent issues, career opportunities, and therapeutic promises of recombinant DNA technology. Students also participate in a virtual drug discovery program to elucidate issues in drug discovery such as target identification, lead discovery and optimization, candidate selection, ethical clinical trials, drug markets, and drug pricing.

Prerequisite: ENG 100 or appropriate placement score, MAT 095 with a "C" or better on the departmental final exam or appropriate placement score.

Course Objectives:
*We will be exploring some contemporary biotechnology concepts after which the student should:*

1) Identify biotechnology-associated careers of interest
2) Describe recombinant DNA technology and its applications in biotechnology
3) Utilize the scientific method to address scientific questions
4) Analyze simple data graphs and tables and perform algebraic calculations underlying key drug discovery processes
5) Evaluate the non-scientific issues of biotechnology such as ethics, patents and publications, academic vs industry competition, public policy, and commercial viability.

*Required Course Materials:*


*Teaching Methodology:*

The material for this class will be covered by lecture, book readings, critical written evaluations, and *class discussions*. Occasional homework will be assigned to reinforce the material. Students will work in groups to evaluate various issues in biotechnology and drug discovery.

*Attendance Policy:*

It is **required** that students attend all lectures. As there will be classroom assignments that will be included in your grade. Excused absences for in-class assignments will be provided with a similar assignment as a take-home assignment. Excused absences include doctor's appointments, sickness, or other family emergencies and I may require a note from your doctor or other appropriate person. All other absences are excused at my discretion.

Additionally, anyone who leaves the classroom during a lecture will not be allowed back into the room. This is disruptive to both the students and the instructor and will not be tolerated. Similarly, I also will not tolerate habitual lateness to my classroom. If on occasion you are late to class, please sit at a desk that is closest to the door so as not to disrupt the flow of the classroom.

*Cell phones and other electronic devices:*

Cell phones are to be put in vibrate mode and placed out of sight during all classroom time. If you need to leave the room for an emergency during a quiz or exam, you must leave your cell phone or other
electronic device at the front of the room and it will be returned to you at the end of class. Computers are allowed in the classroom for note-taking only. If I notice that a computer is being used for other purposes, I will ask the student to leave the classroom.

Communications:

It is expected that students daily access their QCC email and the course page on Blackboard Learn for important announcements. I will also post homework assignments and other pertinent information on Blackboard Learn. If you need to contact me, please do so by email or phone. I am usually accessible via email throughout the day/night and weekends and by phone during the day (leave a voice mail).

Homework assignments:

I will assign homework to reinforce the ideas I present in lecture. These homework assignments range from data analysis of simple scientific graphs to short essays based on the reading. Assignments handed in late will only receive a maximum of half credit (and may receive no credit depending on the circumstances). If you are not present on the day that a homework assignment is due, it is still your responsibility to get the assignment to me on that day. You may email the assignment to me or deliver it to my office or mailbox.

Midterm and Final Exams:

The midterm and final exam will be any combination of multiple choice, short response, and essay. The final exam will be weighted with 2/3 on material covered since the midterm exam and 1/3 on the rest of the material covered during the semester. Make-up exams will only be granted if you have an excused absence (see above). If you know you will be absent before the exam day, please let me know (I will more likely excuse the absence)! The make-up exam need not be the same as that given on exam day and can be any combination of oral questions, short response, and essay.

Grading Policy:

Your course grade will be weighted as follows:

- Midterm Exam: 15%
- Final Exam: 20%
- Short essay assignments: 20%
- Drug Discovery Project: 20%
Other Homework 15%
Participation in Class Discussion 10%
100%

The official QCC Grading Scale will be used to assign final course grades:

A  95-100  B+  87-89  C+  77-79  D+  67-69  F <60
A-  90-94  B   83-86  C   73-76  D   63-66
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**Tentative Classroom Schedule**

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<thead>
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<th>Week</th>
<th>Reading Before Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>The Central Dogma of Biology—DNA, RNA, Protein</td>
</tr>
<tr>
<td>Week 2</td>
<td>Recombinant DNA and the Birth of Genentech</td>
</tr>
<tr>
<td>Week 3</td>
<td>Commercial Venture—Recombinant Insulin and Diabetes</td>
</tr>
<tr>
<td>Week 4</td>
<td>Commercial Venture—Growth hormone and pituitary disorders</td>
</tr>
<tr>
<td>Week 5</td>
<td>Principles of Biological Molecule Manufacturing</td>
</tr>
<tr>
<td>Week 6</td>
<td>Issues with Genentech Start-Up and IPO (Public Policy, Ethics, competition, patents)</td>
</tr>
<tr>
<td>Week 7</td>
<td>Overview of Drug Discovery Process—Why do new drugs cost so much?</td>
</tr>
<tr>
<td>Week 8</td>
<td>Target identification and Validation</td>
</tr>
<tr>
<td>Week 9</td>
<td>Screening for hits</td>
</tr>
<tr>
<td>Week 10</td>
<td>Searching for leads</td>
</tr>
<tr>
<td>Week 11</td>
<td>Lead Optimization</td>
</tr>
<tr>
<td>Week 12</td>
<td>Clinical Candidate Selection/Investigational New Drug Application</td>
</tr>
<tr>
<td>Week 13</td>
<td>Clinical Trials</td>
</tr>
<tr>
<td>Week 14</td>
<td>New Drug Application / Careers in Biotechnology</td>
</tr>
<tr>
<td>Week 15</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

DEGREE PROGRAM OR CERTIFICATE REVISION PROPOSAL

1. Program Name: Biotechnology Technician Certificate

2. Originator: Benjamin Benton Date: 03/14/2014

3. School Dean: Leslie Horton Date: 03/14/2014

4. The requested change (motion) for governance consideration is as follows: To revise the Biotechnology Certificate Program as follows:
   - Introduce a new required course, BTT 101 Introduction to Biotechnology, to semester 1
   - Move CHM 105 General Chemistry I from semester 1 to semester 2
   - Increasing credits from 25 to 28

5. Effective Date: Summer-F-2014

6. Recommended by the School of Math & Science Date: 3/27/2014

   Comments:

7. AA Leadership Team: __________________________________________________________________________ Date: 4/1/14

   Recommended: ❑ Not Recommended: _______

   Comments: __________________________________________________________________________________

8. VP/Academic Affairs: __________________________________________________________________________ Date: 4/1/14

   Recommended: ❑ Not Recommended: _______

   Comments: __________________________________________________________________________________

9. Learning Council: _____________________________________________________________________________ Date: 4/8/14

   Recommended: ❑ Not Recommended: _______

   Comments: __________________________________________________________________________________

10. VP/Academic Affairs: __________________________________________________________________________ Date: ________________

    Approved: ❑ Not Approved: _______

    Comments: __________________________________________________________________________________

    motion to amend effective date to Fall 2014
### DEGREE PROGRAM OR CERTIFICATE REVISION PROPOSAL

**Program:** Biotechnology Certificate Program  
**School:** Math and Science  
**Degree type:** Certificate

Provide a detailed list of the proposed changes to the program.  
1. A new course, BTT 101 Introduction to Biotechnology, will be required for certificate completion.  
2. Move CHM 105 General Chemistry I from semester 1 to semester 2

#### Attachments:  
Current program grid  
Proposed program grid  

Submit separate proposals for any new courses or revised courses in the program.

Provide a rationale for the proposed changes. The new course, BTT 101, will introduce principles of biotechnology that are not covered in the science courses or the BTT 201 Techniques in Biotechnology course. BTT 101 will also support the math, reading, writing and scientific methodology skills needed for success in future science classes in the certificate program and in the biotechnology workforce.

Do any of the proposed changes affect the program goals, the program student learning outcomes, or the course mapping of the General Education Learning Outcomes? If so please provide the revisions. **No**

Do any of the proposed changes affect another department? Examples include the deletion or addition of program courses that are offered by other departments. Please confer with the coordinators of affected departments.  
Department(s) Affected: **No**

Do any of the proposed changes affect articulation agreements? Consult with the Transfer Coordinator. **Yes, have consulted with Daniel de la Torre.**

For an associate degree program, are there any changes in the number of general education credits that could affect MassTransfer? **No**

If yes please provide a rationale.

Will any of the following be required:  
- Additional staff  
- Additional space  
- Additional equipment

Provide a rationale for any needs indicated and include approximate cost of equipment.
<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course #</th>
<th>Offered</th>
<th>Plan to Take</th>
<th>Grade</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semester 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell Biology</td>
<td>BIO 259</td>
<td>F/S</td>
<td></td>
<td></td>
<td>4</td>
<td>BIO 107</td>
</tr>
<tr>
<td>General Chemistry I</td>
<td>CHM 105</td>
<td>F/S</td>
<td></td>
<td></td>
<td>4</td>
<td>CHM 090 or one year of high school chemistry and</td>
</tr>
<tr>
<td>Introduction to Microcomputer Applications</td>
<td>CIS 111</td>
<td>F/S/SU</td>
<td></td>
<td></td>
<td>3</td>
<td>MAT 089 or approp place score</td>
</tr>
<tr>
<td><strong>Semester 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molecular Biology</td>
<td>BIO 260</td>
<td>F/S</td>
<td></td>
<td></td>
<td>4</td>
<td>BIO 107</td>
</tr>
<tr>
<td>General Microbiology</td>
<td>BIO 231</td>
<td>F/S</td>
<td></td>
<td></td>
<td>4</td>
<td>BIO 107</td>
</tr>
<tr>
<td><strong>Semester 3</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Techniques in Biotechnology</td>
<td>BTT 201</td>
<td>SU</td>
<td></td>
<td></td>
<td>6</td>
<td>BIO 259, BIO 260, BIO 231</td>
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<tr>
<td>Total credits required</td>
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<td></td>
<td></td>
<td>25</td>
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<td>Introduction to Biotechnology</td>
<td>BTT 101</td>
<td>F/S</td>
<td></td>
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<td>3</td>
<td>ENG 100 or appropriate placement score, MAT 095 with a &quot;C&quot; or better on the</td>
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<td>departmental final exam or appropriate placement score.</td>
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<td>Total credits required</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>
2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

DEGREE PROGRAM OR CERTIFICATE REVISION PROPOSAL

1. Program Name: General Studies Biotechnology Option

2. Originator: Benjamin Benton       Date: 03/14/2014

3. School Dean: Leslie Horton       Date: 03/14/2014

4. The requested change (motion) for governance consideration is as follows: To revise the General Studies Biotechnology Option Program as follows:
   • Add a summer semester 3. The current semester 3 will be the proposed semester 4 and the current semester 4 will be the proposed semester 5.
   • Add BTT 101 Introduction to Biotechnology to semester 1.
   • Move MAT 122 to proposed semester 3.
   • Move history elective from current semester 3 to proposed semester 3.
   • Move a science elective from current semester 4 to proposed semester 4.
   • Remove elective from current semester 3.

   Fall 2014

5. Effective Date: Summer 1 2014

6. Recommended by the School of Math & Science       Date: 3/27/2014
   
   Comments:

7. AA Leadership Team: _____________________________       Date: 4/1/14
   
   Recommended: ✅  Not Recommended: ________
   
   Comments:

8. VP/Academic Affairs: ____________________________       Date: 4/1/14
   
   Recommended: ✅  Not Recommended: ________
   
   Comments:

9. Learning Council: ________________________________       Date: 4/8/14
   
   Recommended: ✅  Not Recommended: ________
   
   Comments:

10. VP/Academic Affairs: _________________________       Date: 4/8/14
    
    Approved: ✅  Not Approved: ________
    
    Comments: Friendly amendment; effective Fall 2014
DEGREE PROGRAM OR CERTIFICATE REVISION PROPOSAL

<table>
<thead>
<tr>
<th>Program: General Studies Biotechnology Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>School: Math and Science</td>
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<tr>
<td>Degree type: Associate in Arts</td>
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Provide a detailed list of the proposed changes to the program:
- Add a summer semester 3. The current semester 3 will be the proposed semester 4 and the current semester 4 will be the proposed semester 5.
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Attachments:
Current program grid
Proposed program grid

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Do any of the proposed changes affect another department? Examples include the deletion or addition of program courses that are offered by other departments. Please confer with the coordinators of affected departments.
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Program Notes:
* CIS 111 recommended for students who are also completing the Biotechnology Technician Certificate
** BIO 260 recommended for students seeking employment after graduation
*** BTT 201 (summer only) recommended for students seeking employment after graduation
**** Students who have successfully completed BIO 101 prior to Fall 2012 can substitute this course for BIO 107
## GENERAL STUDIES - BIOTECHNOLOGY OPTION - Associate in Arts (Program Code: GSBT) - Proposed

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