




TO: The College Community

FROM: Patricia Toney 
Vice President of Academic Affairs

SUBJECT: **ACADEMIC MATTERS**

DATE: April 15, 2014

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

❖ 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

❖ 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 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

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.

- ❖ 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
-

- ❖ 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

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COURSE REVISION PROPOSAL

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: James W. Brown Date: 4/1/14

Recommended: Not Recommended:
Comments:

8. VP/Academic Affairs: Patricia Toney Date: 4/1/14

Recommended: Not Recommended:
Comments:

9. Learning Council: P. D'Allesandro Date: 4/8/14

Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Mary Schimpf ^{acting} VPAA Date: 4/8/14

Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

Type of Revision: <input type="checkbox"/> Description <input checked="" type="checkbox"/> Prerequisite <input type="checkbox"/> Corequisite <input type="checkbox"/> Number <input type="checkbox"/> Name <input type="checkbox"/> #credits <input type="checkbox"/> Elective Type <input type="checkbox"/> other (explain)	
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):	
<p>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. F</p>	
Proposed Description (include all proposed changes):	
<p>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.</p>	
Rationale for the change:	
<p>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.</p>	
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

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
Digital Design Concepts I	APA 114	F/SU			3	ENG 100 or approp place score
Graphic Design I	APA 121	F			3	ENG 100 or approp place score
Digital Imaging and Media	APA 154	F/SU			3	ENG 100 or approp place score
Digital Photography	APA 161	F/S/SU			3	ENG 100 or approp place score
English Composition & Literature I	ENG 101	F/S/SU			3	ENG 100 or approp place score
Semester 2						
Digital Design Concepts II	APA 115	S/SU			3	APA 114
Graphic Design II	APA 122	S			3	APA 121
Digital Illustration and Animation	APA 155	S/SU			3	APA 154, APA 161
Website Design I <u>or</u>	APA 181	S				APA 161
Fundamentals of 3D Digital Design	APA 171	S			3	APA 154, APA 161
Art Theory Elective*	ART ---	F/S/SU			3	
English Composition & Literature II	ENG 102	F/S/SU			3	ENG 101
Semester 3						
Publication Design	APA 222	F			3	APA 115, APA 122
Typography	APA 271	F/S			3	APA 115, APA 122
Motion Graphics	APA 275	F			3	APA 154, APA 155,
Website Design II <u>or</u>	APA 282	F				APA 181
Digital Video Fundamentals	APA 263	F			3	APA 161
Art Theory Elective*	ART --	F/S/SU			3	
Semester 4						
Interactive Media Processes Portfolio	APA 286	S			4	APA 275, APA 282
Graphic Production Processes Portfolio	APA 287	S			4	APA 222, APA 271
Liberal Arts Elective**	---	F/S/SU			3	
Liberal Arts Elective**	---	F/S/SU			3	
Mathematics Elective	---	F/S/SU			3	
Total credits required					65	

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

APPLIED ARTS – Associate in Science (Program Code: GA) - PROPOSED

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
Digital Design Concepts I	APA 114	F/SU			3	ENG 100 or approp place score
Graphic Design I	APA 121	F			3	ENG 100 or approp place score
Digital Imaging and Media	APA 154	F/SU			3	ENG 100 or approp place score
Digital Photography	APA 161	F/S/SU			3	ENG 100 or approp place score
English Composition & Literature I	ENG 101	F/S/SU			3	ENG 100 or approp place score
Semester 2						
Digital Design Concepts II	APA 115	S/SU			3	APA 114
Graphic Design II	APA 122	S			3	APA 121
Digital Illustration and Animation	APA 155	S/SU			3	APA 154, APA 161
Website Design I or	APA 181	S				APA 161
Fundamentals of 3D Digital Design	APA 171	S			3	APA 154, APA 161
Art Theory Elective*	ART ---	F/S/SU			3	
English Composition & Literature II	ENG 102	F/S/SU			3	ENG 101
Semester 3						
Publication Design	APA 222	F			3	APA 115, APA 122
Typography	APA 271	F/S			3	APA 115, APA 122
Motion Graphics	APA 275	F			3	APA 154, APA 155, APA 181
Website Design II or	APA 282	F				
Digital Video Fundamentals	APA 263	F			3	
Art Theory Elective*	ART ---	F/S/SU			3	
Semester 4						
Interactive Media Processes Portfolio	APA 286	S			4	APA 275, APA 282
Graphic Production Processes Portfolio	APA 287	S			4	APA 222, APA 271
Liberal Arts Elective**	---	F/S/SU			3	
Liberal Arts Elective**	---	F/S/SU			3	
Mathematics Elective	---	F/S/SU			3	
Total credits required					65	

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.

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- 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.

TEXT REQUIRED: Video assignments using www.lynda.com to aid in software knowledge and expertise.

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.

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QUINSIGAMOND COMMUNITY COLLEGE

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 B.E.T. School Date: 3/27/14
Comments:

7. AA Leadership Team: James W. Berner Date: 4/1/14
Recommended: Not Recommended:
Comments:

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

9. Learning Council: P. D'Alessandro Date: 4/8/14
Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Ray S. [unclear] acting VPAA Date: 4/8/14
Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE
COURSE REVISION PROPOSAL

Type of Revision: ___ Description ___XX_ Prerequisite ___ Corequisite ___ Number ___ Name ___ #credits ___ Elective Type ___ other (explain)	
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: James W. Berner Date: 4/1/14

Recommended: Not Recommended:
Comments:

8. VP/Academic Affairs: Patricia Poney Date: 4/1/14

Recommended: Not Recommended:
Comments:

9. Learning Council: P. D'Alessandro Date: 4/8/14

Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Nancy Silimphi ^{act. VPAA} Date: 4/8/14

Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

Type of Revision: <input type="checkbox"/> Description <input checked="" type="checkbox"/> Prerequisite <input type="checkbox"/> Corequisite <input type="checkbox"/> Number <input type="checkbox"/> Name <input type="checkbox"/> #credits <input type="checkbox"/> Elective Type <input type="checkbox"/> other (explain)	
Course Discipline or Department: CSC	School: Business, Engineering & Technology
Current Course Number: CSC 208	
Current Course Name: Introduction to Architecture and Assembly Language	
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: James W. Brun Date: 4/1/14

Recommended: Not Recommended:
Comments:

8. VP/Academic Affairs: Patricia Toney Date: 4/1/14

Recommended: Not Recommended:
Comments:

9. Learning Council: P. D'Alessandro Date: 4/8/14

Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Nancy Stimpf ^{acting} _{VP/AA} Date: 4/8/14

Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

Type of Revision: <input type="checkbox"/> Description <input type="checkbox"/> XX Prerequisite <input type="checkbox"/> Corequisite <input type="checkbox"/> Number <input type="checkbox"/> Name <input type="checkbox"/> #credits <input type="checkbox"/> Elective Type <input type="checkbox"/> other (explain)	
Course Discipline or Department: CSC	School: Business, Engineering & Technology
Current Course Number: CSC 207	
Current Course Name: Programming with Objects	
Current Course Description (as it appears in the college catalog): CSC 207 Programming with Objects 3 Credits 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): CSC 207 Programming with Objects 3 Credits 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	
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 B.E.T. School Date: 3/27/14
Comments:

7. AA Leadership Team: James W. Brown Date: 4/1/14

Recommended: Not Recommended:
Comments:

8. VP/Academic Affairs: Patricia Poney Date: 4/1/14

Recommended: Not Recommended:
Comments:

9. Learning Council: P. D'Alessandro Date: 4/8/14

Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Nancy Solomon ^{acting} VPAA Date: 4/8/14

Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

COURSE REVISION PROPOSAL

Type of Revision: <input type="checkbox"/> Description <input checked="" type="checkbox"/> Prerequisite <input type="checkbox"/> Corequisite <input type="checkbox"/> Number <input type="checkbox"/> Name <input type="checkbox"/> #credits <input type="checkbox"/> Elective Type <input type="checkbox"/> other (explain)	
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

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
English Composition & Literature	ENG 101	F/S/SU			3	ENG 100 or approp place score
Calculus I	MAT 233	F/SU			4	MAT 124
Computer Science I	CSC 108	F/S/SU			4	CIS 111, ENG 100, Coreq: MAT 100 or approp place score
Lab Science	---	F/S/SU			4	
Social Science Elective	---	F/S/SU			3	
Semester 2						
English Composition & Literature II	ENG 102	F/S/SU			3	ENG 101
Calculus II	MAT 234	F/S/SU			4	MAT 233
Computer Science II	CSC 109	F/S/SU			4	CSC 108
Lab Science	---	F/S/SU			4	
Social Science Elective	---	F/S/SU			3	
Semester 3						
Programming with Data Structures	CSC 211	F/S/SU			4	CSC 109 or CIS 225
Humanities Elective	---	F/S/SU			3	
Discrete Mathematics	MAT 125	F/S			3	MAT 123
Speech Communication Skills	SPH 101	F/S/SU			3	Pre/Coreq: ENG 101
Humanities Elective	---	F/S/SU			3	
Semester 4						
Software Engineering I	CSC 212	F/S			4	CSC 109
Probability & Statistics for Engineers and Scientists	MAT 237	F/S/SU			3	MAT 234
Introduction to Architecture and Assembly Language	CSC 208	F/S/SU			4	CSC 107
Social Science Elective	---	F/S/SU			3	
Total Credits Required					66	

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.qcc.edu/academics/technology/computer-science-transfer>.

COMPUTER SCIENCE TRANSFER - Associate in Science (Program Code: CS) - PROPOSED

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
English Composition & Literature	ENG 101	F/S/SU			3	ENG 100 or approp place score MAT 124 CIS 111, ENG 100, Coreq: MAT 100 or approp place score
Calculus I	MAT 233	F/SU			4	
Computer Science I	CSC 108	F/S/SU			4	
Lab Science	---	F/S/SU			4	
Social Science Elective	---	F/S/SU			3	
Semester 2						
English Composition & Literature II	ENG 102	F/S/SU			3	ENG 101 MAT 233 CSC 106 or CSC 108
Calculus II	MAT 234	F/S/SU			4	
Computer Science II	CSC 109	F/S/SU			4	
Lab Science	---	F/S/SU			4	
Social Science Elective	---	F/S/SU			3	
Semester 3						
Programming with Data Structures	CSC 211	F/S/SU			4	CSC CSC 107 or 109 or CIS 225
Humanities Elective	---	F/S/SU			3	
Discrete Mathematics	MAT 125	F/S			3	MAT 123
Speech Communication Skills	SPH 101	F/S/SU			3	Pre/Coreq: ENG 101
Humanities Elective	---	F/S/SU			3	
Semester 4						
Software Engineering I	CSC 212	F/S			4	CSC 109
Probability & Statistics for Engineers and Scientists	MAT 237	F/S/SU			3	MAT 234
Introduction to Architecture and Assembly Language	CSC 208	F/S/SU			4	CSC 107 or CSC 109
Social Science Elective	---	F/S/SU			3	
Total Credits Required					66	

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.qcc.edu/academics/technology/computer-science-transfer>.

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

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.T. School Date: 3/27/14

Comment:

7. AA Leadership Team: James W. Brown Date: 4/1/14

Recommended: Not Recommended:

Comments:

8. VP/Academic Affairs: Patricia Toney Date: 4/1/14

Recommended: Not Recommended:

Comments:

9. Learning Council: P. D'alexsancho Date: 4/8/14

Recommended: Not Recommended:

Comments:

10. VP/Academic Affairs: Randy Stapleton ^{act} _{VP AA} 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:

James W. Brown

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

Recommended: Not Recommended: _____

Comments:

8. VP/Academic Affairs: Patricia Toney Date: 4/1/14

Recommended: Not Recommended: _____

Comments:

9. Learning Council: P. D'alexandrio Date: 4/8/14

Recommended: Not Recommended: _____

Comments:

10. VP/Academic Affairs: Roy Schuch Date: 4/8/14

Approved: Not Approved: _____

Comments:

act of VPAA

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 Date: March 27, 2014
Comments:

7. AA Leadership Team: James W. Brown Date: 4/1/14

Recommended: Not Recommended:
Comments:

8. VP/Academic Affairs: Patricia Toney Date: 4/1/14

Recommended: Not Recommended:
Comments:

9. Learning Council: P D'Alessandro Date: 4/8/14

Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Way Skelton ^{acting} VPAA Date: 4/8/14

Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE
COURSE REVISION PROPOSAL

Type of Revision: <input type="checkbox"/> Description <input type="checkbox"/> Prerequisite <input checked="" type="checkbox"/> Corequisite <input type="checkbox"/> Number <input type="checkbox"/> Name <input type="checkbox"/> #credits <input type="checkbox"/> Elective Type <input type="checkbox"/> other (explain)	
Course Discipline or Department: Allied Health	School: Healthcare
Current Course Number: AHL 136	
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

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Strategies for College and Career*	ORT 110	F/S/SU			3	Coreq- ENG 090 and ENG 095 or approp place score
Introduction to English Composition**	ENG 100	F/S/SU			3	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
Introduction to Medical Terminology	ALH 102	F/S/SU			3	Coreq - ENG 100 or approp place score
Introduction to Microcomputer Applications	CIS 111	F/S/SU			3	
Principles of Human Biology	BIO 100	F/S/U			4	ENG 100 or approp place score
Phlebotomy/EKG Technician	ALH 134	F/S/U			3	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.
Phlebotomy/EKG Technician Clinical Co-Operative Externship	ALH 136				6	ALH 134
<i>Total credits required</i>					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

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Strategies for College and Career*	ORT 110	F/S/SU			3	Coreq- ENG 090 and ENG 095 or approp place score
Introduction to English Composition**	ENG 100	F/S/SU			3	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
Introduction to Medical Terminology	ALH 102	F/S/SU			3	Coreq - ENG 100 or approp place score
Introduction to Microcomputer Applications	CIS 111	F/S/SU			3	
Principles of Human Biology	BIO 100	F/S/U			4	ENG 100 or approp place score
Phlebotomy/EKG Technician	ALH 134	F/S/U			3	
Phlebotomy/EKG Technician Clinical Co-Operative Externship	ALH 136				6	Coreq-ALH 134
<i>Total credits required</i>					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.

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE
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: James W. Brown Date: 4/1/14
Recommended: Not Recommended:
Comments:

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

9. Learning Council: P D'Alessandro Date: 4/8/14
Recommended: Not Recommended:
Comments:

10. VP/Academic Affairs: Nancy S. Luff ^{VPAA} Date: 4/8/14
Approved: Not Approved:
Comments:

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

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 <u>x</u> 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 <u>x</u> 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
<p>General course description and prerequisites (as it will appear in the catalog):</p> <p>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.</p> <p>Prerequisite: ENG 100 or appropriate placement score, MAT 095 with a “C” or better on the departmental final exam or appropriate placement score.</p>		
<p>All required texts and paperbacks, including information on publisher and edition used (provide a suggested text):</p> <p><i>Genentech: The Beginnings of Biotech</i> by Sally Smith Hughes (The University of Chicago Press, 2011)</p> <p><i>The Billion Dollar Molecule: One Company’s Quest for the Perfect Drug</i> by Barry Werth (Simon and Schuster, 1994)</p>		
<p>Instructional Objectives (list):</p> <p>The assigned readings above will be used as the context for presenting the following objectives:</p> <ul style="list-style-type: none"> • 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. 		
<p>Teaching procedures: (provide suggested teaching methodology):</p> <p>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.</p>		
<p>Course topics and/or assignments and/or required and/or supplemental reading (provide a list of suggested course topics):</p> <p><u>First 7 weeks: <i>Genentech: The Beginnings of Biotech</i></u></p> <p>The Birth of Biotech—Genentech and Insulin</p> <ol style="list-style-type: none"> 1. Background in Recombinant DNA Technology <ol style="list-style-type: none"> a. The central dogma—DNA is the blueprint for most of the structures and functions in organisms b. The development of recombinant DNA technology <ol style="list-style-type: none"> 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
- 12. Submit IND for best candidate.
- 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:

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		
		B-	80-82	C-	70-72	D-	60-62		

Academic Honesty and Plagiarism:

Our purpose in the classroom is to seek the truth; this work requires trust and honesty between teacher and student. If we are not honest about what we know and don't know, our learning will always be impaired. Because our teaching and learning depends on this honest communication, we expect all students to understand what plagiarism is and why it is unacceptable.

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<http://www.qcc.mass.edu/english>

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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.

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

CONNECTION OF BTT 101 Introduction to Biotechnology to PROGRAM STUDENT LEARNING OUTCOMES FOR General Studies—Biotechnology Option & Biotechnology Technician Certificate		
1	Understand the fundamental scientific principles of biotechnology	M
2	Demonstrate the ability to manipulate and analyze data	M
3	Demonstrate the ability to work effectively in a laboratory setting	N/A

4	Utilize critical thinking and scientific methodology	M
5	Demonstrate the application of scientific knowledge to common biotechnological techniques	I
6	Demonstrate effective written and verbal communication	M
7	Demonstrate math competency	M
8	Demonstrate the ability to be an effective team leader	I
9		

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@qcc.mass.edu

Office Hours (220A-1):

Phone: 508-854-2835

M/W 2:00-3:00 pm T/F 9:30-10:30 am
or by appointment

Mailbox 425

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

Required Course Materials:

Genentech: The Beginnings of Biotech by Sally Smith Hughes, University of Chicago Press, 2011.

The Billion Dollar Molecule: One Company's Quest for the Perfect Drug by Barry Werth, Simon and Schuster, 1994.

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	<u>10%</u>
	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		
		B-	80-82	C-	70-72	D-	60-62		

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Tentative Classroom Schedule

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

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

- Fall 2014*
5. Effective Date: ~~Summer 1~~ 2014
 6. Recommended by the School of Math & Science Date: 3/27/2014

Comments:

- James W. Brown*
7. AA Leadership Team: _____ Date: 4/1/14

Recommended: Not Recommended: _____
Comments:

- Patricia Toney*
8. VP/Academic Affairs: _____ Date: 4/1/14

Recommended: Not Recommended: _____
Comments:

- P. D'Alexandrio*
9. Learning Council: _____ Date: 4/8/14

Recommended: Not Recommended: _____
Comments:

- Mary White ady VPAA*
10. VP/Academic Affairs: _____ Date: _____

Approved: Not Approved: _____
Comments:

*motion to ammend effective date to Fall 2014;
passed*

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

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. <ol style="list-style-type: none"> 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.

BIOTECHNOLOGY TECHNICIAN CERTIFICATE (Program Code: BI) - Current

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
Cell Biology	BIO 259	F/S			4	BIO 107
General Chemistry I	CHM 105	F/S			4	CHM 090 or one year of high school chemistry and MAT 099 or approp place score
Introduction to Microcomputer Applications	CIS 111	F/S/SU			3	
Semester 2						
Molecular Biology	BIO 260	F/S			4	BIO 107
General Microbiology	BIO 231	F/S			4	BIO 107
Semester 3						
Techniques in Biotechnology	BTT 201	SU			6	BIO 259, BIO 260, BIO 231
Total credits required					25	

BIOTECHNOLOGY TECHNICIAN CERTIFICATE (Program Code: BI) - Proposed

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
Introduction to Biotechnology	BTT 101	F/S			3	ENG 100 or appropriate placement score, MAT 095 with a "C" or better on the departmental final exam or appropriate placement score.
Cell Biology	BIO 259	F/S			4	BIO 107
Introduction to Microcomputer Applications	CIS 111	F/S/SU			3	
Semester 2						
General Chemistry I	CHM 105	F/S			4	CHM 090 or one year of high school chemistry and MAT 099 or approp place score
Molecular Biology	BIO 260	F/S			4	BIO 107
General Microbiology	BIO 231	F/S			4	BIO 107
Semester 3						
Techniques in Biotechnology	BTT 201	SU			6	BIO 259, BIO 260, BIO 231
Total credits required					28	

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.

5. Effective Date: ^{Fall} ~~Summer~~ 1 2014

6. Recommended by the School of Math & Science

Date: 3/27/2014

Comments:

James W. Brown

7. AA Leadership Team: _____

Date: 4/1/14

Recommended: Not Recommended: _____

Comments:

8. VP/Academic Affairs: *Patricia Toney*

Date: 4/1/14

Recommended: Not Recommended: _____

Comments:

9. Learning Council: *P. D'Alessandro*

Date: 4/8/14

Recommended: Not Recommended: _____

Comments:

10. VP/Academic Affairs: *Mary Shupf ^{acting} VPAA*

Date: 4/8/14

Approved: Not Approved: _____

Comments:

Friendly amendment; effective Fall 2014

2013-2014
QUINSIGAMOND COMMUNITY COLLEGE

DEGREE PROGRAM OR CERTIFICATE REVISION PROPOSAL

Program: General Studies Biotechnology Option
School: Math and Science
Degree type: Associate in Arts
<p>Provide a detailed list of the proposed changes to the program.</p> <ul style="list-style-type: none"> • 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.
<p>Attachments:</p> <p>Current program grid Proposed program grid</p>
Submit separate proposals for any new courses or revised courses in the program.
<p>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 at QCC and other 4-year institutions and/or in the biotechnology workforce.</p>
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
<p>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.</p> <p>Department(s) Affected: No</p>
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.
<p>Will any of the following be required:</p> <p style="padding-left: 40px;">Additional staff ____ Additional space ____ Additional equipment ____</p> <p>Provide a rationale for any needs indicated and include approximate cost of equipment.</p>

GENERAL STUDIES - BIOTECHNOLOGY OPTION - Associate in Arts (Program Code: GSBT) - Current

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1						
English Composition & Literature I	ENG 101	F/S/SU			3	ENG 100 or approp place score
Principles of Biology I****	BIO 107	F/S/SU			4	MAT 095 with a "C" or better on the MAT 095 departmental final exam or approp place score; Coreq: ENG 101
Statistics	MAT 122	F/S/SU			3	MAT 099 with a "C" or better on the MAT 099 departmental final exam or placement by the Computerized Placement test
General Chemistry I	CHM 105	F/S/SU			4	CHM 090 or one year of High School Chemistry, MAT 099 or approp place score
Critical Thinking & Problem Solving	HUM 101	F/S/SU			3	ENG 100 or approp place score
Semester 2						
English Composition & Literature II	ENG 102	F/S/SU			3	ENG 101
Cell Biology	BIO 259	F/S			4	BIO 107
Behavioral Science Elective	—	F/S/SU			3	
General Chemistry II	CHM 106	F/S/SU			4	CHM 105
Pre-Calculus	MAT 123	F/S/SU			3	
Semester 3						
Speech Communication Skills	SPH 101	F/S/SU			3	Pre/Coreq: ENG 101
General Microbiology Elective*	BIO 231	F/S			4	BIO 107
History Elective	HST—	F/S/SU			3-4	
Social Science Elective	—	F/S/SU			3	
Semester 4						
Humanities Elective	—	F/S/SU			3	
Science Elective**	—	F/S/SU			4	
Social Science Elective	—	F/S/SU			3	
Mathematics or Science Elective	—	F/S/SU			3-4	
Mathematics or Science Elective***	—	F/S/SU			3-6	
Total Credits Required					66-71	

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

Course Title	Course #	Offered	Plan to Take	Grade	Credits	Prerequisites
Semester 1 (Fall) English Composition & Literature I Principles of Biology***	ENG 101	F/S/SU			3	ENG 100 or approp place score
	BIO 107	F/S/SU			4	MAT 095 with a "C" or better on the MAT 095 departmental final exam or approp place score, Coreq: ENG 101
Introduction to Biotechnology	BTT 101	F/S			3	ENG 100 or appropriate placement score, MAT 095 with a "C" or better on the departmental final exam or appropriate placement score.
	CHIM 105	F			4	CHM 090 or one year of high school chemistry and MAT 099 with a "C" or better on the MAT 099 departmental final exam or appropriate placement score
General Chemistry I	HUM 101	F/S/SU			3	ENG 100 or approp place score
	ENG 102	F/S/SU			3	ENG 101
Semester 2 (Spring) Critical Thinking & Problem Solving English Composition & Literature II Cell Biology Behavioral Science Elective General Chemistry II Pre-Calculus	BIO 259	F/S			4	BIO 107
	—	F/S/SU			3	
	CHIM 106	S			4	CHM 105
	MAT 123	F/S/SU			3	MAT 100 or appropriate placement score.
Semester 3 (Summer I or II)	MAT 122	F/S/SU			3	MAT 099 with a "C" or better on the MAT 099 departmental final exam or appropriate placement score
	HST---	F/S/SU			3	
Semester 4 (Fall) Statistics History Elective Speech Communication Skills	SPH 101	F/S/SU			3	Pre/Coreq: ENG 101
	BIO 231	F/S			4	BIO 107
Semester 5 (Spring) General Microbiology Science Elective* Social Science Elective Humanities Elective	—	F/S/SU			4	
	—	F/S/SU			3	
	—	F/S/SU			3	
	—	F/S/SU			3/4/6	
Total credits required					66-70	

Program Notes:

* 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