1. **Type of Change:** Course Description and Credit Change.

2. **Course Description:**
   **From:**

   **To:**
   CIS166: Computer Programming for Information Processing I. 4 hours, (2 lecture, 2 lab) , 3 credits. Structured computer programming using a modern high-level programming language. Includes console I/O, data types, variables, control structures, including iteration, arrays, function definitions and calls, parameter passing, functional decomposition, and an introduction to objects. Debugging techniques. PREREQ: MAT 104 or placement by the Department of Mathematics and Computer Science. Note: Not Intended for students in Mathematics or Computer Science

3. **Rationale:**
   These changes reflect the following changes:
   1. The beginning programming language is evolving away from Basic and into the more powerful and useful Python language.
   2. For some time beginning programming has been taught as a 2 hour lecture, 2 hour lab course. The change to a three credit course is consistent with the school's policy for lecture-lab courses.

4. **Date of Departmental Approval:** May 8, 2013
LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

CURRICULUM CHANGE

1. Type of Change: Course Description, Course Number and Credit Change.

2. Course Description:

From:
[CMP 230]: Programming Methods I. [4 hours, 4 credits.] Introduction to structured computer programming using a modern high-level programming language. Programming constructs covered to include console I/O, data types, variables, control structures, including iteration, arrays, function definitions and calls, parameter passing, functional decomposition, and an introduction to objects. Debugging techniques. PREREQ: MAT 104 or placement by the Department of Mathematics and Computer Science. Note: For students who intend to major in Computer Science, Mathematics, Computer Graphics and Imaging, or the sciences. Some previous computer programming experience is highly recommended.

To:
CMP 167: Programming Methods I. 4 hours, (2 lecture, 2 lab), 3 credits. Structured computer programming using a modern high-level programming language. Includes console I/O, data types, variables, control structures, including iteration, arrays, function definitions and calls, parameter passing, functional decomposition, and an introduction to objects. Debugging techniques.
PREREQ: MAT 104 or placement by the Department of Mathematics and Computer Science. Note: For students who intend to major in Computer Science, Mathematics, Computer Graphics and Imaging, or the sciences. Some previous computer programming experience is recommended. Not intended for students in Accounting or Computer Information Systems; the technical content is the same as CIS 166 but the emphasis is different.

3. Rationale:
These changes reflect the following changes:
1. This is an entry level programming class that has changed from Java to the simpler and easier to learn Python language.
2. For some time beginning programming has been taught as a 2 hour lecture, 2 hour lab course. The change to a three credit course is consistent with the schools policy in this area.
3. The technical content of this course is the same as CIS 166. This course has more emphasis on material that is useful for professional programmers.

4. Date of Departmental Approval: May 8, 2013
1. **Type of Change**: Number of credits and Course Description

2. **Course Description**:

   **From:**
   CMP 405: Introduction to Networks. [4 hours, 4 credits.] Introduction to network protocols and algorithms. Intensive study of the most important protocols at each layer. Examination of their strengths and weaknesses. Basic algorithms for identifying primary servers, constructing forwarding and broadcasting trees, and determining routing tables. Writing a simple networking service at the I.P. layer or higher. PREREQ: CMP 334 and CMP 338.

   **To:**
   CMP 405: Introduction to Networks. 4 hours, (2 lecture, 2 lab), 3 credits.
   Introduction to network protocols and algorithms. Intensive study of the most important protocols at each layer. Examination of their strengths and weaknesses. Basic algorithms for identifying primary servers, constructing forwarding and broadcasting trees, and determining routing tables. Writing a simple networking service at the I.P. layer or higher. Lab exercises include building and testing small networks.
   PREREQ: CMP 334 and CMP 338.

3. **Rationale**:
   This course is currently taught as a 2 hour lecture, 2 hour lab course. The change to a three credit course is consistent with the school's policy in this area.

4. **Date of Departmental Approval**: May 8, 2013
LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
CURRICULUM CHANGE

1. Type of Change: B. S. CGI Degree Requirements

2. From:

[58]-Credit Major in Computer Graphics and Imaging, B.S.

The required credits are distributed as follows:

In ART/CGI (24 credits; may be taken as CGI or ART)
ART/CGI 221: Applied Imaging and Applications to the World Wide Web I. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 222: Applied Imaging and Applications to the World Wide Web II. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 321: Computer Modeling and Design I. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 322: Evolving Techniques in Digital Photography. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 325: Digital Multimedia. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 421: Computer Animation I. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 422: 3D Interactive Design. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 441: Broadcast Design. 4 hours (2, lecture; 2, lab), 3 credits.

In Computer Science (11 credits)
[CMP 230:] Programming Methods I. [4 hours, 4 credits.]
[CMP 326:] Programming Methods II. [4 hours, 4 credits.]
CMP 342: Internet Programming. 4 hours (2, lecture; 2, lab), 3 credits.

In Mathematics (5 credits)
MAT 155: Calculus Laboratory. 2 hours, 1 credit.
MAT 175: Calculus I. 4 hours, 4 credits.

In Art (18 credits)
ART 100: Basic Drawing. 4 hours (2, lecture; 2, lab), 3 credits.
ART 101: Introduction to two-Dimensional Design. 4 hours (2, lecture; 2, lab), 3 credits.
ART 102: Introduction to Three-Dimensional Design. 4 hours, (2, lecture; 2, lab), 3 credits.
ART 106: Introduction to Sculpture. 4 hours (2, lecture; 2, lab), 3 credits.
Or
ART 108: Introduction to Photography. 4 hours (2 lecture; 2 lab), 3 credits.
ART 112: Introduction to Digital Imaging. 4 hours (2 lecture; 2 lab), 3 credits.
ARH 167: Tradition and Innovation in the Art of the West. 3 hours, 3 credits.
Or
ARH 141: Introduction to the History of Modern Art of the Nineteenth and Twentieth Centuries in Europe and the United States. 3 hours, 3 credits.

3. TO:

56-Credit Major in Computer Graphics and Imaging, B.S.
The required credits are distributed as follows:
In ART/CGI (24 credits; may be taken as CGI or ART)
ART/CGI 221: Applied Imaging and Applications to the World Wide Web I. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 222: Applied Imaging and Applications to the World Wide Web II. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 321: Computer Modeling and Design I. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 322: Evolving Techniques in Digital Photography. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 325: Digital Multimedia. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 421: Computer Animation I. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 422: 3D Interactive Design. 4 hours (2, lecture; 2, lab), 3 credits.
ART/CGI 441: Broadcast Design. 4 hours (2, lecture; 2, lab), 3 credits.
In Computer Science (9 credits)
CMP 167: Programming Methods I. 4 hours (2, lecture; 2, lab), 3 credits.
CMP 267: Programming Methods II. 4 hours (2, lecture; 2, lab), 3 credits.
CMP 342: Internet Programming. 4 hours (2, lecture; 2, lab), 3 credits.
In Mathematics (5 credits)
MAT 155: Calculus Laboratory. 2 hours, 1 credit.
MAT 175: Calculus I. 4 hours, 4 credits.

In Art (18 credits)
ART 100: Basic Drawing. 4 hours (2, lecture; 2, lab), 3 credits.
ART 101: Introduction to two-Dimensional Design. 4 hours (2, lecture; 2, lab), 3 credits.
ART 102: Introduction to Three-Dimensional Design. 4 hours, (2, lecture; 2, lab), 3 credits.
ART 106: Introduction to Sculpture. 4 hours (2, lecture; 2, lab), 3 credits.
Or
ART 108: Introduction to Photography. 4 hours (2 lecture; 2 lab), 3 credits.
ART 112: Introduction to Digital Imaging. 4 hours (2 lecture; 2 lab), 3 credits.
ARH 167: Tradition and Innovation in the Art of the West. 3 hours, 3 credits.
Or
ARH 141: Introduction to the History of Modern Art of the Nineteenth and Twentieth Centuries in Europe and the United States. 3 hours, 3 credits.

4. Rationale:
CMP167 Programming Methods course replaces CMP 230 as the initial programming course. It is taught as a 2 hour lecture-2 hour lab course and is therefore a 3 credit course. The introduction of the Python programming language as an easier to learn programming language (the same language is taught in the CIS 166 course) and the fact that freshman are more sophisticated in their computer knowledge support this change.
The CMP267 Programming Methods 2 course replaces CMP326 as the second programming course. It is a 2 hour lecture-2 hour lab course and is therefore a 3 credit course.

5. Date of departmental approvals:
Math and Computer Science _5/8/2013____
Art Department__September 18,2013________
LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
CURRICULUM CHANGE

1. Type of Change: B. S. CIS Degree Requirements

3. From:
[56-58]-Credit Major in Computer Information Systems, B.S.

In Computer Science: Required Courses (20 credits):
CIS 166: Computer Programming for Information Processing [ (4 hours, 4 credits)]
CIS 211: Computer Information Systems (4 hours, 4 credits)
CIS 212: Microcomputer Architecture (4 hours, 3 credits)
CIS 244: Introduction to Database Management (4 hours, 3 credits)
CIS 331: Network Introduction (4 hours, 3 credits)
CIS 344: Database Design and Programming (4 hours, 3 credits)

In Computer Science: Elective Courses (6-8 credits):
Two additional courses chosen from the 200-level (or higher) CIS courses or from CGI 221, CGI 321, CGI 421, and CMP 326. One of the courses must be a 300- (or 400-) level CIS course.

In Mathematics: Required Courses (15 credits):
MAT 132: Basic Concepts of Probability and Statistics (4 hours, 4 credits)
MAT 174: Elements of Calculus (4 hours, 4 credits)
MAT 301: Applied Statistics and Computer Analysis (4 hours, 3 credits)
MAT 348: Mathematical Methods for Management (4 hours, 4 credits)

In Economics: Required Courses (9 credits):
ECO 166: Fundamentals of Economics (3 hours, 3 credits)
ECO 167: Economic Analysis (3 hours, 3 credits)
ACC 185: Introduction to Accounting for Non-Accounting Majors (3 hours, 3 credits)

Further Electives (6 credits):
Students must choose two courses from the following:
One additional 200 level (or higher) CIS course, 3 credits
PHI 221: Ethical Issues in Computing and Technology \( (3 \text{ hours, 3 credits}) \)

POL 299: Law, Computers, and the Internet: The Politics of Information Technology \( (3 \text{ hours, 3 credits}) \)

Note 1: At least one of PHI 221 and POL 299 must be chosen

Note 2:

1. A minor is NOT required.
2. Students considering graduate work should take MAT 175 - 176 instead of MAT 174.
3. For departmental honors, see one of the advisors in the Department of Mathematics and Computer Science.

4. To:

55-57-Credit Major in Computer Information Systems, B.S.

In Computer Science: Required Courses (19 credits):
CIS 166: Computer Programming for Information Processing \( (4 \text{ hours, 3 credits}) \)
CIS 211: Computer Information Systems \( (4 \text{ hours, 4 credits}) \)
CIS 212: Microcomputer Architecture \( (4 \text{ hours, 3 credits}) \)
CIS 244: Introduction to Database Management \( (4 \text{ hours, 3 credits}) \)
CIS 331: Network Introduction \( (4 \text{ hours, 3 credits}) \)
CIS 344: Database Design and Programming \( (4 \text{ hours, 3 credits}) \)

In Computer Science: Elective Courses (6-8 credits):
Two additional courses chosen from the 200-level (or higher) CIS courses or from CGI 221, CGI 321, CGI 421, and CMP 326. One of the courses must be a 300- (or 400-) level CIS course.

In Mathematics: Required Courses (15 credits):
MAT 132: Basic Concepts of Probability and Statistics \( (4 \text{ hours, 4 credits}) \)
MAT 174: Elements of Calculus \( (4 \text{ hours, 4 credits}) \)
MAT 301: Applied Statistics and Computer Analysis \( (4 \text{ hours, 3 credits}) \)
MAT 348: Mathematical Methods for Management \( (4 \text{ hours, 4 credits}) \)

In Economics: Required Courses (9 credits):
ECO 166: Fundamentals of Economics \( (3 \text{ hours, 3 credits}) \)
ECO 167: Economic Analysis \( (3 \text{ hours, 3 credits}) \)

ACC 185 or ACC 171: Introduction to Accounting for Non-Accounting Majors \( (3 \text{ hours, 3 credits}) \)
Further Electives (6 credits):
Students must choose two courses from the following:
One additional 200 level (or higher) CIS course, 3 credits

PHI 221: Ethical Issues in Computing and Technology (3 hours, 3 credits)

POL 299: Law, Computers, and the Internet: The Politics of Information Technology (3 hours, 3 credits)

Note 1: At least one of PHI 221 and POL 299 must be chosen
Note 2: Students considering graduate work should take MAT 175 - 176 instead of MAT 174.
Note 3. For departmental honors, see one of the advisors in the Department of Mathematics and Computer Science.

4. Rationale:
The change reflects the fact that CIS 166 has been changed to a 3 credit course and the hours adjusted for the major.
5. Date of departmental approvals: May 8, 2013
LEHM AN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
CURRICULUM CHANGE

1. Type of Change: B. A. C.S. Degree Requirements

5. From:

[43-44]-Credit Major in Computer Science, B.A. 
There are eleven required courses:

<table>
<thead>
<tr>
<th>Hours/Credits</th>
<th>Course Code and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 175: Calculus I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 176: Calculus II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 313: Linear Algebra</td>
</tr>
<tr>
<td>[4 hours, 4 credits]</td>
<td>CMP 230: Programming Methods I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 232: Elementary Discrete Structures &amp; Applications to Computer Science</td>
</tr>
<tr>
<td>[4 hours, 4 credits]</td>
<td>CMP 326: Programming Methods II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 334: Computer organization</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 338: Data Structures</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 339: Programming Languages or CMP 426: Operating Systems</td>
</tr>
</tbody>
</table>

Two advanced (300- or 400-level) CMP electives (MAT 226 can be used as one of these electives).

Notes:

1. A minor is also required.
2. All students, particularly those considering graduate work, are advised to take more upper-level Computer Science courses. (The list above is only the minimum required for graduation.)
3. For Departmental honors, see one of the advisers in the Department of Mathematics and Computer Science.
3. TO:

43-46-Credit Major in Computer Science, B.A.
There are twelve required courses:

<table>
<thead>
<tr>
<th>Hours/Credits</th>
<th>Course Code and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 175: Calculus I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 176: Calculus II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 313: Linear Algebra</td>
</tr>
<tr>
<td>4 hours, 3 credits</td>
<td>CMP 167: Programming Methods I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 232: Elementary Discrete Structures &amp; Applications to Computer Science</td>
</tr>
<tr>
<td>4 hours, 3 credits</td>
<td>CMP 267: Programming Methods II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 334: Computer organization</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 338: Data Structures</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 339: Programming Languages or</td>
</tr>
<tr>
<td>4 hours, 3-4 credits</td>
<td>CMP 405: Introduction to Networking or</td>
</tr>
<tr>
<td>4 hours, 3-4 credits</td>
<td>CMP 420: Database Systems</td>
</tr>
</tbody>
</table>

Two advanced (300- or 400-level) CMP electives (MAT 226 can be used as one of these electives).

Notes:

1. All students, particularly those considering graduate work, are advised to take more upper-level Computer Science courses. (The list above is only the minimum required for graduation.

2. For Departmental honors, see one of the advisers in the Department of Mathematics and Computer Science.

4. Rationale:
CMP167 Programming Methods course replaces CMP 230 as he initial programming course. It is taught as a 2 hour lecture- 2 hour lab course and is therefore a 3 credit course. The introduction of the Python programming language as an easier to learn
programming language (the same language is taught in the CIS 166 course) and the fact that freshmen are more sophisticated in their computer knowledge support this change. The CMP267 Programming Methods 2 course replaces CMP326 as the second programming course. It is a 2 hour lecture- 2 hour lab course and is therefore a 3 credit course.

-Adding CMP 405 and CMP 420 as choices reflects the change in importance of these areas in Computer Science

5. Date of departmental approvals: May 8, 2013
LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
CURRICULUM CHANGE

1. Type of Change: B. S. C.S. Degree Requirements

6. From:
[56-60]-Credit Major in Computer Science, B.S.
There are fifteen required courses:

<table>
<thead>
<tr>
<th>Hours/Credits</th>
<th>Course Code and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 175: Calculus I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 176: Calculus II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 313: Linear Algebra</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 230: Programming Methods I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 232: Elementary Discrete Structures &amp; Applications to Computer Science</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 326: Programming Methods II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 334: Computer Organization</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 338: Data Structures</td>
</tr>
<tr>
<td>[4 hours, 4 credits]</td>
<td>CMP 339: Programming Languages</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 426: Operating Systems</td>
</tr>
</tbody>
</table>
Four advanced (300- or 400-level) CMP courses (MAT 226: Vector Calculus, 4 hours, 4 credits or PHY 305: Digital Electronics, 2 hours, lecture; 2 hours, lab; 3 credits, can be substituted for one of these courses). One advanced (300- or 400-level) MAT course, not including MAT 300, 301, or 348 (CMP 332 or CMP 416 can be used for this course). A minor is not required.

3. TO:

57-61-Credit Major in Computer Science, B.S.

There are sixteen required courses:

<table>
<thead>
<tr>
<th>Hours/Credits</th>
<th>Course Code and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 175: Calculus I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 176: Calculus II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>MAT 313: Linear Algebra</td>
</tr>
<tr>
<td>4 hours, 3 credits</td>
<td>CMP 167: Programming Methods I</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 232: Elementary Discrete Structures &amp; Applications to Computer Science</td>
</tr>
<tr>
<td>4 hours, 3 credits</td>
<td>CMP 267: Programming Methods II</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 334: Computer Organization</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 338: Data Structures</td>
</tr>
<tr>
<td>4 hours, 3 credits</td>
<td>CMP 405: Introduction to Networking</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 420 Database Systems</td>
</tr>
<tr>
<td>4 hours, 4 credits</td>
<td>CMP 426: Operating Systems</td>
</tr>
</tbody>
</table>

Four advanced (300- or 400-level) CMP courses are required. (MAT 226: Vector Calculus, 4 hours, 4 credits or PHY 305: Digital Electronics, 2 hours, lecture; 2 hours, lab; 3 credits, can be substituted for one of these courses).

One 300- or 400-level MAT course is required (not including MAT 300, 301, or 348). CMP 332 or CMP 416 can be used for this course.
Note: All students, particularly those considering graduate work, are advised to take more upper-level Computer Science courses, particularly CMP 339 and CMP 416.

4. Rationale: These changes reflect the evolution in the teaching of computer science courses, and the new areas of computer science (Networking and Database) that are critical in the business world.

CMP167 Programming Methods course replaces CMP 230 as he initial programming course. It is taught as a 2 hour lecture- 2 hour lab course and is therefore a 3 credit course. The introduction of the Python programming language as an easier to learn programming language (the same language is taught in the CIS 166 course) and the fact that freshmen are more sophisticated in their computer knowledge support this change. The CMP267 Programming Methods 2 course replaces CMP326 as the second programming course. It is a 2 hour lecture- 2 hour lab course and is therefore a 3 credit course.

The department wants to apply for accreditation for the computer science majors. By decreasing the credits of some of the beginning courses and shifting requirements the major is more in line with requirements of the accreditation agencies. These manipulations necessitated a change of requirements from 56-60 to 57-61 credits for the B.S. major in computer science.

CMP405 Introduction to Networking is made a required course to reflect the realities of the Internet and the commercial world. The ACM has Networking as part of their core "Body of Knowledge" for Computer Science. It is currently taught as a 2 hour lecture- 2 hour lab course and is therefore a 3 credit course. Networking has become a significant career path for Computer Science majors.

CMP420 Database Systems is also made a required course to also reflect the realities of the commercial world. The ACM has Information Management as part of their core "Body of Knowledge" for Computer Science and database is at the center of that specialty. Database Design and Administration has become a significant career path for Computer Science majors.

CMP 339 has been dropped as a required course to make room for more critical courses.

5. Date of departmental approvals: May 8, 2013
LEHMAN COLLEGE
OF THE
CITY UNIVERSITY OF NEW YORK

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

CURRICULUM CHANGE

1. Type of Change: Math BA Degree Requirements

7. From:

[40-44]-Credit Major in Mathematics, B.A.
There are [eleven] required courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course List</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>MAT 175, MAT 176, and MAT 226</td>
</tr>
<tr>
<td>8</td>
<td>MAT 313 and MAT 314</td>
</tr>
<tr>
<td>4</td>
<td>MAT 320</td>
</tr>
</tbody>
</table>

[4 CMP 230]

12-16 Four additional courses chosen from among 200-level or higher MAT courses, not counting *MAT 231, 300, 301, and 348. [CMP 326] and CMP 332 may be chosen.

A minor is also required.

3. TO:

43-47-Credit Major in Mathematics, B.A.
There are twelve required courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course List</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>MAT 175, MAT 176, and MAT 226</td>
</tr>
<tr>
<td>8</td>
<td>MAT 313 and MAT 314</td>
</tr>
</tbody>
</table>
4. MAT 320
3. CMP 167
4. MAT 330 or MAT 323

12-16 Four additional courses chosen from among 200-level or higher MAT courses, not counting *MAT 231, 300, 301, and 348. CMP 267 and CMP 332 may be chosen.

4. Rationale:
CMP 167 Programming Methods course replaces CMP 230 as the initial programming course. It is taught as a 2 hour lecture-2 hour lab course and is therefore a 3 credit course. The introduction of the Python programming language as an easier to learn programming language (the same language is taught in the CIS 166 course) and the fact that freshmen are more sophisticated in their computer knowledge support this change. The CMP 267 Programming Methods 2 course replaces CMP 326 as the second programming course. It is a 2 hour lecture-2 hour lab course and therefore a 3 credit course.
The credit change from 40-44 to 43-47 is caused by the introduction of one additional course requirement and the same number of optional courses combed with a decrease in credits of the introductory computer science courses. MAT 330 is probability and MAT 323 is ordinary differential equations and the department feels all students should take at least one of these. Our students have not been taking enough higher-level mathematical courses to be competitive. The department felt that it should continue to require an additional four elective higher-level courses.

5. Date of departmental approvals: May 8, 2013