



MEMORANDUM

TO: Faculty Senate

FROM: Jack Kirby *JKR*

DATE: October 25, 2016

SUBJECT: Curriculum Proposal #16-17-02, REV #1
Math Support and Course Re-Numbering

I recommend approval of the attached REVISION #1 of Curriculum Proposal 16-17-02. This proposal seeks to adjust three math support courses to become stand-alone courses. This proposal also rennumbers most courses at the 1000/1100 level using numbers at the 1400 level for support courses and 1500 level for the non-support courses.

Dr. Christina Lavorata
Dr. Donald Trisel
Dr. Joseph Riesen
Ms. Leslie Lovett
Ms. Laura Ransom
Dr. Shayne Gervais



MEMORANDUM

TO: Curriculum Committee

FROM: Jack Kirby *JRK*

DATE: October 11, 2016

SUBJECT: Curriculum Proposal #16-17-02
Math Support and Course Re-Numbering

I recommend approval of the attached Curriculum Proposal 16-17-02. This proposal seeks to adjust three math support courses to become stand-alone courses. This proposal also renumbers most courses at the 1000/1100 level using numbers at the 1400 level for support courses and 1500 level for the non-support courses.

Dr. Christina Lavorata
Dr. Donald Trisel
Dr. Joseph Riesen
Ms. Leslie Lovett
Ms. Laura Ransom
Dr. Shayne Gervais

CURRICULUM PROPOSAL (Submit one hard copy and an electronic copy to the Associate Provost by the second Tuesday of the month.)

Proposal Number: 16-17-02
School/Department/Program: Science and Technology—Computer Science, Math, and Physics—Mathematics
Preparer/Contact Person: Joseph Riesen
Telephone Extension: 4505
Date Originally Submitted: October 7, 2016
Revision (Indicate date and label it Revision #1, #2, etc.): Revision #1
Implementation Date Requested: _____

- I. **PROPOSAL.** Write a brief abstract, not exceeding 100 words, which describes the overall content of the proposal.

Three math support courses will be adjusted to become stand-alone courses, two of them will be aligned with non-support courses. (1407 with Fundamentals of Mathematics, 1430 with College Algebra) and the fourth (Math 1001-support course for Tech Math I) will be deleted. Those students wishing to enter Tech Math I will take the “pre-college algebra” course. Completion of the aligned support course will be equivalent to completion of the non-support course counterpart and we will adopt the policy that no student will be able to get credit for a course with support and its non-support counterpart. All descriptions will include reference to this policy. Most courses at the 1000/1100 level will be renumbered using numbers at the 1400-level for support courses and 1500-level for the non-support courses. Besides the four support courses, the only changes will be the course number. (NO content changes.)

- II. **DESCRIPTION OF THE PROPOSAL.** Provide a response for each letter, A-H, and for each Roman Numeral II–V. If any section does not apply to your proposal, reply N/A.

- A. Deletion of course(s) or credit(s) from program(s)

N/A

Total hours deleted. _____

- B. Addition of course(s) or credit(s) from program(s)

N/A

Total hours added. _____

- C. Provision for interchangeable use of course(s) with program(s)

Any student requiring College Algebra credit will take MATH 1430 or MATH 1530—depending on which prerequisite they satisfy.

Any student requiring Fundamental Concepts of Math credit will take MATH 1407 or 1507—depending on which prerequisite they satisfy.

In any case, NO student may get credit for both MATH 1430 and MATH 1530.

Similarly, NO student may get credit for both MATH 1407 and MATH 1507.

- D. Revision of course content. Include, as an appendix, a revised course description, written in complete sentences, suitable for use in the university catalog.

The support course changes will be presented in another curriculum proposal.

- E. Other changes to existing courses such as changes to title, course number, and elective or required status.

| Current number | Proposed number | Notes | Additional Notes |
|----------------|--|--|---|
| *1001(+1101) | Delete | X | X |
| *1007(+1107) | Combined to be new course →1407 | No Prerequisite 4 cr-meets 5 hrs per week | Equivalent to MATH 1507-Fundamentals Concepts of Math (Cannot receive credit for both MATH 1407 and 1507) |
| *1011 | Renumbered→1400 No General Studies credit | No Prerequisite. Will serve as a prerequisite for 1510 and 1530 for students lacking the usual prerequisite. | |
| *1012(+1112) | Combined to become new course→1430 | 4 cr-meets 5 hrs per week | Equivalent to MATH 1530-College Algebra (Cannot receive credit for both MATH 1430 and 1530) |
| 1101 | 1510 | Number change only | |
| 1102 | 1520 | Number change only | |
| 1107 | 1507 | Number change only | |
| 1112 | 1530 | Number change only | |
| 1113 | 1550 | Number change only | |
| 1115 | 1540 | Number change only | |

| Current number | Proposed number | Notes | Additional Notes |
|----------------|-------------------|---|------------------|
| 1125 | Unchanged for now | Anticipate deletion later this academic year | |
| 1170 | Unchanged for now | Anticipate deletion later this academic year | |
| 1185 | 1585 | Number change only | |
| 1186 | 1586 | Number change only | |
| 1190 | Unchanged for now | Anticipate number change to 2000-level later this academic year | |
| 1199 | Unchanged | Will remain, is standard in many FSU disciplines. | |

*These courses are addressed in a separate curriculum proposal.

Prerequisite changes:

- a. Any current course that has Math 1107 as a prerequisite will be replaced by MATH 1407 OR MATH 1507.
- b. Any current course that has Math 1112 as a prerequisite will be replaced by MATH 1430 OR MATH 1530.

F. Creation of new course(s). For each new course

1. Designate the course number, title, units of credit, prerequisites (if any), ownership (FSU or shared) and specify its status as an elective or required course. If you are creating a shared course, attach a memo from the Deans of the affected Schools explaining the rationale for the course being shared.

N/A

2. Include, as an appendix, a course description, written in complete sentences, suitable for use in the college catalog.

The course descriptions for all courses that are affected by the course creation in the other proposal and course number changes will be included.

3. Include, as an appendix, a detailed course outline consisting of at least two levels.

N/A

4. In order to meet the requirements as outlined in Goal One of the Strategic Plan, please include Outcome Competencies and Methods of Assessment as an appendix. Examples are available upon request from the Chair of the Curriculum Committee.

N/A

G. Attach an itemized summary of the present program(s) affected, if any, and of the proposed change(s).

Describe how this proposal affects the hours needed to complete this program. Specifically, what is the net gain or loss in hours? Use the format for Current and Proposed Programs in Appendix A.

N/A—Note: Since this proposal only changes numbers of courses, there is no effect on any program other than a number change. Students who enter FSU without prerequisites for courses in their intended major may be required to have more than 120 credits and/or take more than 4 years to complete their requirements for graduation.

III. **RATIONALE FOR THE PROPOSAL.**

A. **Quantitative Assessment:** Indicate the types of assessment data, i.e., surveys, interviews, capstone courses, projects, licensure exams, nationally-normed tests, locally developed measurements, accreditation reports, etc., that were collected and analyzed to determine that curricular changes were warranted. Quantitative data is preferred.

1. *The current model for math support courses has been very difficult to implement. Many of the 400+ students each semester must have their math or math support courses entered individually due to limitations with Banner and its implementation on campus. The registrar originally thought that our model could be programmed and implemented fully, but has been impossible or nearly impossible to program in the current framework. This has led to Beth Thompson doing nearly every override in Native Banner. Subsequently, Dean Don Trisel and Registrar Shane Gervais have stated that the model must be changed as soon as possible and the registrar gave us several possibilities to consider. Our choice is contained in the other proposal.*
2. *The current numbering system for math courses is using or has used every number from 1100-1116 and there is very little room to use a set of numbers for our courses in that range.*
3. *Pierpont has changed their math courses to 1200's.*
4. In order to be able to put our courses in order by "level of prerequisite/difficulty" and sequential courses in ascending order, we have decided to implement the following:
 - i. All support courses will be at the 1400 level and all non-support 1st year courses will be at the 1500 level. (Exception: 1199 will remain as the special topics number.)
 - ii. Courses that have a support component will have the same last two digits as the course for which the student would receive equivalent credit. Those two courses are MATH 1407 and MATH 1507- Fundamental Concepts of Mathematics and MATH 1430 and MATH 1530 College Algebra.
 - iii. In the 1500's, each course has been ordered by level of prerequisite.
 - iv. We have several courses at the 1100-level that will be changed/replaced/deleted/moved to the 2000-level in the near future, and those numbers will not be changed until those course changes are implemented. (Hopefully, submitted later this year.)

B. **Qualitative Assessment:** Based upon the assessment data above, indicate why a curricular change is justified. Indicate the expected results of the change. Be sure to include an estimate of the increased cost, or reduction in cost of implementation. FOR EXAMPLE: Will new faculty, facilities, equipment, or library materials be required?

For the MATH 1500-level courses no course content will be changed. The courses will be offered in the approximate numbers as presently offered, therefore the need for new faculty and new resources is not anticipated.

IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.




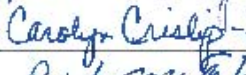

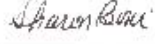
By signing here, you are indicating your college's/school's notification of this proposal.

| College/School | Dean | Signature |
|--------------------|------|-----------|
| See Following Page | | |
| | | |
| | | |

V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

VI. **ADDITIONAL COMMENTS.**

- IV. Should this proposal affect any course or program in another school, a memo must be sent to the Dean of each school impacted and a copy of the memo(s) must be included with this proposal. In addition, the Deans of the affected schools must sign below to indicate their notification of this proposal.

| College/School | Dean | Signature |
|--|----------------------|--|
| Science and Technology | Donald Trisal |  |
| Liberal Arts | Deanna Shields |  |
| Business | Richard Harvey |  |
| Education, Health & Human Performance | Carolyn Crislip-Tacy |  |
| Fine Arts | Robert Mild |  |
| Nursing and Allied health Administration | Sharon Boni |  |

The above form indicates that the head of the academic unit has received a preliminary copy of each of the two curriculum proposals from the math department—

1. Math Support changes.
2. Math 1000-level course renumbering.

- V. Should this proposal affect any course to be added or deleted from the general studies requirements, a memo from the chair of the General Studies Committee indicating approval of the change must be included with this proposal.

- VI. ADDITIONAL COMMENTS.

APPENDIX A
 B.X. Degree in XXXXXXXXX
 Current Program

| Required Major Courses | HRS |
|--|-----------|
| N/A | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| TOTAL Required Major Courses | XX |
| Major Electives | XX |
| | |
| | |
| Minor Requirements/Electives (if minor is required) | XX |
| | |
| | |
| TOTAL HOURS FOR MAJOR (and minor if required) | XX |

| Required General Studies Courses (example text highlighted) | |
|---|---|
| Attribute IA – Critical Analysis | X |
| Major Course - PSYC 3310 | |
| Attribute IB – Quantitative Literacy | 3 |
| MATH 1107 or higher in IB | |
| Attribute IC – Written Communication | 3 |
| ENGL 1104 | |
| Attribute ID - Teamwork | X |
| Major Course - PSYC 3310 | |
| Attribute IE – Information Literacy | 3 |
| ENGL 1108 | |
| Attribute IF – Technology Literacy | 3 |
| ENGL 1109 | |
| Attribute IG – Oral Communication | 3 |
| COMM 2200 or 2201 or 2202 | |
| Attribute III - Citizenship | 3 |
| HIST 1107 or 1108 or POLI 1103 | |
| Attribute IV – Ethics | 3 |
| Any course in IV | |
| Attribute V – Health | 3 |

| | | |
|-------------------------------------|---|------------|
| Attribute VI - Interdisciplinary | PHED 1101 or SCIE 1000 | 3 |
| Attribute VIIA – Arts | SOCY 2200 or any course in VI | 3 |
| Attribute VIIB - Humanities | Any course in VIIA | 3 |
| Attribute VIIC – Social Sciences | Any course in VIIB | X |
| Attribute VIID - Natural Science | Major Course - PSYC 1101 | 3 |
| Attribute VIII – Cultural Awareness | Any course in VIID | 3 |
| Additional General Studies hours | Any GEOG course in VIII | X |
| | Major Course - PSYC 3390 writing intensive course | |
| TOTAL GENERAL STUDIES HOURS | | 39 |
| TOTAL FREE ELECTIVES | | XX |
| TOTAL HOURS | | 120 |

NOTE:

The text highlighted in yellow is to serve as an example. Please replace the text with your current program requirements using the format indicated. When an Attribute is satisfied by a major course, simply place an “X” in the hours column, since the hours have already been counted in the major. Otherwise, indicate how the Attribute will be satisfied and insert the hours to be counted in General Studies. Before submitting your proposal, please remove the highlighting and this paragraph.

APPENDIX A

B.X. Degree in XXXXXXXX

Proposed Program

| Required Major Courses | HRS |
|--|-----------|
| N/A | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| TOTAL Required Major Courses | XX |
| Major Electives | XX |
| | |
| | |
| Minor Requirements/Electives (if minor is required) | XX |
| | |
| | |
| TOTAL HOURS FOR MAJOR (and minor if required) | XX |

| Required General Studies Courses (example text highlighted) | |
|---|---|
| Attribute IA – Critical Analysis | X |
| Major Course - PSYC 3310 | |
| Attribute IB – Quantitative Literacy | 3 |
| MATH 1107 or higher in IB | |
| Attribute IC – Written Communication | 3 |
| ENGL 1104 | |
| Attribute ID - Teamwork | X |
| Major Course - PSYC 3310 | |
| Attribute IE – Information Literacy | 3 |
| ENGL 1108 | |
| Attribute IF – Technology Literacy | 3 |
| ENGL 1109 | |
| Attribute IG – Oral Communication | 3 |
| COMM 2200 or 2201 or 2202 | |
| Attribute III - Citizenship | 3 |
| HIST 1107 or 1108 or POLI 1103 | |
| Attribute IV – Ethics | 3 |
| Any course in IV | |
| Attribute V – Health | 3 |
| PHED 1101 or SCIE 1000 | |
| Attribute VI - Interdisciplinary | 3 |

| | | |
|-------------------------------------|---|------------|
| | SOCY 2200 or any course in VI | |
| Attribute VIIA – Arts | | 3 |
| | Any course in VIIA | |
| Attribute VIIB - Humanities | | 3 |
| | Any course in VIIB | |
| Attribute VIIC – Social Sciences | | X |
| | Major Course - PSYC 1101 | |
| Attribute VIID - Natural Science | | 3 |
| | Any course in VIID | |
| Attribute VIII – Cultural Awareness | | 3 |
| | Any GEOG course in VIII | |
| Additional General Studies hours | | X |
| | Major Course - PSYC 3390 writing intensive course | |
| TOTAL GENERAL STUDIES HOURS | | 39 |
| TOTAL FREE ELECTIVES | | XX |
| TOTAL HOURS | | 120 |

NOTE:

The text highlighted in yellow is to serve as an example. Please replace the text with your proposed program requirements using the format indicated. When an Attribute is satisfied by a major course, simply place an “X” in the hours column, since the hours have already been counted in the major. Otherwise, indicate how the Attribute will be satisfied and insert the hours to be counted in General Studies. Please remember that the General Studies component of your program must have at least 30 hours outside the major prefix. Before submitting your proposal, please remove the highlighting and this paragraph.

APPENDIX B

Course Descriptions for Renumbered Courses

NOTE: The only changes below are course numbers and the reference to new course numbers included in the prerequisites.

MATH 1510 **S-FSU** Applied Technical Mathematics I...3 hrs.
This course is an introduction to fundamental mechanics and techniques for performing operations with algebraic expressions, and subsequently solving linear equations, systems of linear equations and quadratic equations. The course also introduces trigonometric functions and is designed to develop methods of solving right angles and oblique triangles using trigonometry. PR: MATH ACT 19 or MATH SAT 460 or COMPASS 36 or MATH 0095 or MATH 0088 or MATH 1001 with a "C" or better or MATH 1400.
MAJOR RESTRICTION – MAJORS in the College of Science and Technology.

MATH 1520 **S-FSU** Applied Technical Mathematics II..... 3 hrs.
This course is a continuation of MATH 1510 (or MATH 1410). Topics include solving radical equations and polynomial equations, complex numbers, exponential and logarithmic functions, inequalities and trigonometry. PR: MATH 1410 with a "C" or better or MATH 1510 with a "C" or better.
MAJOR RESTRICTION –MAJORS in the College of Science and Technology.

MATH 1507 **S-FSU** Fundamental Concepts of Mathematics.... 3hrs.
This introductory survey course is specifically designed to fulfill the General Studies requirements for quantitative literacy. It is designed to strengthen computational skills while focusing on real-world problems. Topics may include critical thinking skills, sequences, set theory, logic, probability, statistics, consumer mathematics. No student may receive credit for both MATH 1407 and MATH 1507.
PR: Math ACT ³ 19 or Math SAT ³ 460 or Math COMPASS ³ 36 or MATH 0095 or MATH 0086 or Math 1007 with a "C" or better.

MATH 1530 **S-FSU** College Algebra..... 3 hrs.
This course includes the study of real numbers, complex numbers, algebraic expressions, equations and inequalities, functions and function operations, composition of functions, inverse functions, graphing and transformations of functions, exponents and radicals, quadratic, exponential, and logarithmic functions, and applications. No student shall receive credit for both MATH 1430 and MATH 1530.
PR: MATH ACT 21 or MATH SAT 500 or MATH COMPASS 49 or Pierpont MATH 1100 or MATH 1012 with a "C" or better or MATH 1400 with a "C" or better.

MATH 1550 **S-FSU** Applied Statistics..... 3 hrs.
This course is an introduction to statistics with appropriate applications. Topics covered include descriptive statistics, probability, binomial distribution, normal distribution, sampling, hypothesis testing and regression and correlation. A problem-solving approach and modern software will be used. PR: MATH ACT score of 21 or MATH SAT of 500 or COMPASS score of 49 or MATH 1102 or MATH 1112 or MATH 1520 or MATH 1430 or MATH 1530.

MATH 1540 **S-FSU** Trigonometry and Elementary Functions..... 3 hrs.
This course includes a study of circular and trigonometric functions and applications, trigonometric identities, equations and graphs of circular functions, functions and inverse functions, vectors, and other related topics. PR: MATH ACT score of 23 or MATH SAT of 540 or COMPASS score of 63 or a "C" or better in MATH 1112 or a "C" or better in MATH 1430 or a "C" or better in MATH 1530.

MATH 1585 **S-FSU** Applied Calculus I..... 4 hrs.
A study of calculus with an emphasis on its applications to science, business, technology and social science. Topics covered

using the derivative: functions and their graphs, max/min problems, related rates, approximation of change, and curvilinear motion. Topics covered using the integral: area, volume, and accumulation functions. Graphing calculators and mathematical software will be introduced and used throughout the course. PR: MATH ACT score of 24, or MATH SAT 560 or COMPASS score of 67 or MATH 1115 or MATH 1540 or MATH 1520 with "B" or better or MATH 1102 with "B" or better.

MATH 1586 **S-FSU** Applied Calculus II..... 4 hrs.
A continuation of the study of calculus as applied to science, business, technology and social science. The integral will be further studied, including applications of area, volume, accumulation functions, curvilinear motion, solutions to some simple differential equations and other applications chosen from a variety of disciplines. Students will examine sequences and series involving convergence and divergence, power series and Taylor polynomials and series. The calculus of vectors and multivariable functions will be introduced and partial derivatives and multiple integrals will be used to study applied problems from a variety of disciplines. Graphing calculators and mathematical software will be used throughout this course. PR: MATH 1185 or MATH 1585. Spring semester only.

MATH 1190 Calculus I 4 hrs.
This course is the calculus of one variable, beginning with an intuitive study of limits and a geometric interpretation of the derivative. Topics include differentiation of functions and the application of the derivative to graphing functions, approximating functions, solving max/min problems and related rate problems, anti-differentiation and its link to the signed area under a curve, the fundamental theorem of calculus and applications of the definite integral. PR: MATH ACT score of 25, or MATH SAT 570, or COMPASS 73, or MATH 1115 or MATH 1540 or MATH 1170 or MATH 1186 or MATH 1586.

MATH 1199 Special Topics in Mathematics.....1-12 hrs.
Studies in special selected topics, to be determined by the instructor and approved by the department chair. Credits earned will be applicable as free electives in degree and certificate programs.

FROM: Mathematics Department

TO: General Studies Committee

RE: Course creation and number changes affecting General Studies choices

DATE: September 23, 2016

Dear General Studies Committee:

The math department has two curriculum proposals that will be introduced simultaneously to the Curriculum Committee at its September meeting that affect the General Studies Requirements in a minor fashion. These affect only courses in IB-Quantitative Literacy. There are only two types of changes that we are requesting and they are discussed below.

1. Most of the courses at the 1000-level will have number changes and no other change. The ones which affect General Studies will be:
 - a. MATH 1101 will be changed to MATH 1510
 - b. MATH 1107 will be changed to MATH 1507
 - c. MATH 1112 will be changed to MATH 1530
 - d. MATH 1115 will be changed to MATH 1550
 - e. MATH 1185 will be changed to MATH 1585

NOTE: MATH 1190 will be changed later in the academic year to a 2000-level course number and will be accomplished when all other number changes for math courses will be implemented.
2. The current co-requisite model that we use will be changed from a two-course model (MATH 1001/1101, for example) to a stand-alone course which will encompass both components in a single course. There will be two such courses—MATH 1407-Fundamental Concepts of Math “Extended” and MATH 1430-College Algebra “Extended”. Each will be 4 credits. The change for General Studies will be that
 - a. Upon completion of MATH 1407, the student will have completed the equivalent of MATH 1507—the current general studies course *Fundamental Concepts of Mathematics* (old number MATH 1107). We will make the additional restriction that no student may receive credit for both MATH 1407 and MATH 1507.
 - b. Upon completion of MATH 1430, the student will have completed the equivalent of MATH 1530—the current general studies course *College Algebra* (old number MATH 1112). We will make the additional restriction that no student may receive credit for both MATH 1430 and MATH 1530.

Since we will deem the student to have completed College Algebra if either MATH 1430 or MATH 1530 is completed, we would like to add 1430 to the General Studies List for IB-Quantitative Literacy.

Similarly, since we will deem the student to have completed Fundamental Concepts of Mathematics if either MATH 1407 or MATH 1507 is completed, we would like to add 1407 to the General Studies List for IB-Quantitative Literacy.

The new General Studies List for IB-Quantitative Literacy would become:

CHEM 1105 Chemical Principles I, 5 hrs.

¹MATH 1407 Fundamental Concepts of Math "Extended", 4 hrs.

^{1,3}MATH 1507 Fundamental Concepts of Math, 3 hrs.

³MATH 1510 Applied Technical Mathematics I, 3 hrs.

²MATH 1430 College Algebra "Extended", 4 hrs.

^{2,3}MATH 1530 College Algebra, 3 hrs.

³MATH 1540 Trigonometry & Elementary Functions, 3 hrs.

³MATH 1585 Applied Calculus I, 4 hrs.

MATH 1190 Calculus I 4 hrs.

¹ *The student would receive 3 credits of General Studies credit from either MATH 1407 or MATH 1507.*

² *The student would receive 3 credits of General Studies credit from either MATH 1430 or MATH 1530.*

³ *Change of course number only.*

Thank you for your consideration of our request.

Sincerely,

Dr. Joseph Riesen

Ms. Beth Thompson

on behalf of the mathematics department.