Course Syllabus
FRSK 102 — Introductory College Skills: Mathematics
Department of Mathematics & Computer Science
College of Science & Mathematics

Spring Semester, 2012

Instructor Information

Instructor: Dr. Matthew Salomone, Assistant Professor
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Office Hours: Tuesday/Thursday, 11:00–12:30, in the Academic Achievement Center

Course Catalog Information

Course Number: FRSK 102–004 or FRSK 102–005
Course Name: Introductory College Skills: Mathematics
Course Location: 202 Harrington Hall
Meeting Times: Tuesday/Thursday, 8:00–9:15 a.m. (Sec. 004) or 9:30–10:45 (Sec. 005)
Prerequisite Courses: None
Successor Courses: MATH 140/150 (Pre-Calculus), MATH 105 (Selected Topics),
MATH 110 (Elementary Statistics), MATH 112 (Math for Elementary Education I),
MATH 120 (Introductory Linear Algebra), MATH 130 (Discrete Mathematics)
Course Attributes: Remedial – This course does not satisfy any core curriculum requirement,
nor may the credits be applied toward the minimum credits required for
graduation by any major at BSU. Credits earned are not considered college-
level at BSU and are unlikely to transfer as college credits to other institutions.

Course Description

This course is designed to equip students with the tools necessary to be successful in college-level
quantitative and mathematics content courses. Mathematical readiness, confidence, and productive study
habits are improved through both self-directed and collaborative activities. Topics include the arithmetic
of integers and rational numbers, the use of arithmetic properties to simplify algebraic expressions,
solving algebraic equations up to degree two, and elements of graphing.

Course Learning Outcomes  To successfully complete this course, students must be able to:

1. Represent numerical quantities with, perform arithmetic using, and convert between: integers,
   fractions, decimals, and percents.
2. Simplify and evaluate algebraic expressions using rules of precedence and properties of arithmetic.
3. Choose and implement strategies to solve linear and quadratic equations.
4. Graph ordered pairs and linear equations, and connect graphical with algebraic properties.
**Knewton Individualized Course — Pilot Program FAQ**

This semester, you are part of a pilot program at Bridgewater State University designed to improve student learning in developmental mathematics. The objective of this pilot is to design a mathematics course around your individual strengths and weaknesses, and permit you to complete your course at your pace. Powering this course will be the online adaptive learning platform Knewton (knewton.com).

**Why is BSU doing this?**

Developmental mathematics is like running a 100-yard dash to college readiness. However, while the finish line is the same for all runners, each runner begins the dash at a different place: some with a 50-yard head start, and some who begin 50 yards behind the starting line. Different students need different things from this course: some need a quick refresher of commonly-confused topics, while others need more time to shed years of misconceptions, ineffective practices, and frustration with math.

An individualized course affords you the opportunity to work at your own pace, on the material that you are ready to learn. The material cannot rush ahead of you or move too slowly for you, because you control your progress, working both in class with your classmates and your professor, and outside of class on your own and with BSU’s trained staff of Math Services tutors. You will complete the course by taking the final exam when you are ready – when you have finished (“mastered”) each topic area.

As an instructor, and on behalf of the Department of Mathematics and the University, I am very hopeful that you will find this course to be a new and positive experience learning mathematics.

**What will class look like?**

The highest expectation I have of you this semester is to take an active role in your learning. Mathematics is not a spectator sport: like a sport, a musical instrument, or an art, it cannot be mastered without patient, productive, and persistent practice. Our time together in class will be almost completely devoted to this practice.

You will be working individually, in small groups of your classmates, and with me during class to complete math problems delivered to you by the Knewton online system. When you arrive each day, I may assign you to small groups of students working on similar material; each of you will log into your Knewton account and complete exercises. I will roam the room offering my assistance – you may ask me and your group members about anything at any time when working on Knewton exercises.

Collaborate and cooperate. Part of being active in your learning is explaining your understanding to others – and thereby deepening it as well. You will benefit from giving help to your classmates at least as much as they do from receiving it.

**When are quizzes and tests given?**

Your progress through the course is measured by the number of mastery “badges” you receive in Knewton. After you receive each badge, within the following week or two, you will be assigned to complete a class-length activity in a small group of three students. I will not assist groups with these activities, except to clarify the wording of questions. The group’s performance on this activity will become part of each group member’s Class Activities grade.

The only graded individual exam is the final exam, which is given by pencil and paper on a date of your choosing. **In order to be given the final exam, you must first earn six Knewton “badges,” one of which must be the Algebra badge, and earn an 80% score on a practice exam.** If you score lower than 70% on the final exam, you will be asked to re-take it. A maximum of one re-take attempt will be permitted for each student.
What happens after I finish the final exam?

After you earn 70% or higher on the final exam, or after your second attempt, your course is over and your final grade is determined. Your continuing attendance for the remainder of the semester is optional: you are welcome to work on additional Knewton assignments to keep your skills fresh if you wish.

Where’s our textbook?

There is no textbook for this course: within the Knewton platform, each topic area has its own set of instructional material including instructional videos, worked exercises, and practice problems. These can be accessed at any time via an internet browser.

What does the work in each topic area look like?

Our course is divided into seven modules (see the Course Content section for more information). Each module may have several levels of learning, proceeding from basic to more advanced, and within each level there are several lessons. Generally, lessons, levels, and modules must be completed in order: use the Let’s Go button on your dashboard to continue with the lesson you’re prepared to learn next.

Each learning level begins with a Show What You Know test to measure your strengths and weaknesses. The results of this test determine a study plan by testing you out of lessons you’ve already mastered, and prescribing more work on lessons you haven’t yet mastered.

Each lesson consists of several workshops, including video tutorials and practice problems, designed to help you build your understanding. These workshops may be completed in any order within a lesson. When you feel ready to complete a lesson, you’ll need to pass its Test Your Skills assessment with a 70% or higher score. If you do, you can move on to the next lesson; if not, you can re-take the test.

If you miss the 70% mark on a lesson’s test twice, you will be prescribed deeper review in Focus Mode. During Focus Mode, you will receive a new set of workshops and practice problems to catch you up on the background you need in order to be successful in the workshops of the main lesson. Only after completing Focus Mode will you then be permitted to take the Test Your Skills assessment again.

When you have received a certain number of points in a module, you will receive the Mastery Badge for that module. You can then start work on a new module, or continue earning more points in the same.

Will we have homework?

Your Knewton lesson plan – which you will work on during nearly every class – is also your homework. You are encouraged to access Knewton outside class to continue your work toward mastery in each topic. If you are able to devote at least 5 hours per week outside of class working on Knewton’s lesson plan, you will set yourself up to remain on track to complete the course material in a timely fashion.

What if I don’t earn six badges in time for the final exam?

This course is designed so that the majority of students will be able to finish the material within one semester. You will have until May 7, 2012, at the latest to complete your work earning mastery badges. Knewton’s “On Track” monitor can give you an idea of whether you are working at a sufficient pace.

You will retain access to the Knewton system for two calendar years after you register. If you have completed four or more badges on May 7 but are not yet prepared to take the final exam, you may petition me for an incomplete (IN) grade. This petition must be submitted in writing (not e-mail). You and I will then develop a plan for how and when you will finish the work. We will sign a contract to reflect our agreement. This contract must be finalized by May 12, 2012, or a grade of U will be given.
Course Resources

Course Websites: Knewton  http://login.knewton.com
                  Personal  http://webhost.bridgew.edu/msalomone

Required Materials: Access to Knewton online course materials is required.
                    A pair of headphones (with 1/8” connector or adapter) is also required.
                    Your instructor will have only a few pairs of headphones to lend.

Purchasing Options: BSU will bill you for the fee to access Knewton after drop/add period.

Course Supplies: Pencils (not pens) must be used on all exams.
                 A scientific calculator is required for this course. Four-function calculators are likely to be inadequate, and multi-function devices such as smart phones will not be permitted for use during class.

Grading Scheme

This course is graded on a Satisfactory (S) / Unsatisfactory (U) basis, judged by the total percentage of available points earned at the end of the semester.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Grade Points</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>70% and above</td>
<td>N/A</td>
<td>Satisfactory; Prepared for next course</td>
</tr>
<tr>
<td>U</td>
<td>69% and below</td>
<td>N/A</td>
<td>Unsatisfactory; Not yet prepared</td>
</tr>
<tr>
<td>IN</td>
<td>Incomplete: This grade is given only when a student is unable to complete a small portion (less than half) of the course due to circumstances beyond the student’s control. Students wishing to receive an IN grade must submit their request to the instructor, in writing, prior to the date of the final exam. All outstanding work must then be completed within the next academic semester, or the IN grade will revert to Unsatisfactory (U) at the end of this period.</td>
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Grading Components and Policies

Grades will be based on the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knewton Points (Max. 5% per subject)</td>
<td>30%</td>
</tr>
<tr>
<td>In-Class Group Activities</td>
<td>10%</td>
</tr>
<tr>
<td>Attendance</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>50%</td>
</tr>
</tbody>
</table>

This course is mastery-based. In order to receive a passing grade for the semester, you will be asked to demonstrate mastery in each subject area of the course. Your mastery of course material determines the pace of your progress: as soon as you have demonstrated proficiency in each topic, you will be permitted to continue your work to the next.

You can work through the course at your own pace, and take the final exam at any time after you have earned six Knewton mastery badges, one of which must be the Algebra badge. You will be asked to retake the final exam if you score below 70%. However, only one retake attempt will be permitted. The higher of your two attempts will be entered as your final exam grade.
Course Content

This course is designed to prepare students who are continuing to the general college-level mathematics courses MATH 105 (Selected Topics), MATH 110 (Elementary Statistics), and MATH 112 (Math for Elementary Teachers I). The subject areas of the course are outlined below.

When a sufficient number of points have been earned in a subject, you will receive a mastery badge. Each badge you earn is worth up to 5% of your course grade, pro-rated by the percentage of total possible points earned in that subject. Unfinished mastery badges will be recorded as zeroes.

To be given the final exam, you must earn six mastery badges, of which one must be the Algebra badge. If the seventh badge is earned, the points in the seventh subject will be counted as extra credit.

1. Get Started

Level 1
How this course works

4. Ratios & Proportions

Level 1
Fraction division
Ratios & rates
Ratio applications
Percents

Level 2
Ratios & fractions
Proportions
Ratios & percents

5. Geometry

Level 1
Using basic shapes
Circumference & area

2. The Number System

Level 1
Long division
Factors & multiples
Decimals

Level 2
Negatives in xy-plane
Negative quantities
Moving in xy-plane

Level 3
All about addition
Properties of math
Fractions & decimals

Level 4
Rational exponent rules
(In)dependent operations

3. Equations & Expressions

Level 1
Math expressions
Variables & operations
Equivalent expressions

Level 2
Testing values
Equations
Inequalities
(In)dependent variables

Level 3
Tricks of equality
Real world algebra

Level 4
Exponent rules
Irrational numbers
Square/cube roots
Scientific notation

Level 5
Linear equations
Systems of eqs.

6. Functions

Level 1
Slope
Linear equations

Level 2
Basic functions
Linear functions
Functions in the world

Level 3
Explaining linear equations
Linear & exponential models
Systems of eqs. revisited

Level 4
Polynomial & rational expr.
Explaining nonlinear eqs.

Level 5
Quadratic equations
Rewriting expressions
Solving quadratics

7. Algebra

Level 1
Solving word problems
Using units
Linear & exponential expr.

Level 2
Quadratic expressions
Polynomial operations
Complex numbers

Generally, lessons and modules must be completed in order. If you are confused on what to work on next, the Let’s Go button on your Knewton dashboard suggests the next lesson you are ready to learn.
# Course Policies

**Attendance:** Students are expected to attend every scheduled course meeting, and will be held accountable to all announcements and course material of each class meeting. This expectation remains in place until a student has completed the final exam.

**Behavior:** Students are expected to maintain a professional environment in the classroom that is conducive to their learning and that of their fellow classmates. Disruptive behavior, or behavior that otherwise detracts from the learning environment, will not be tolerated, and the instructor reserves the right to request a student leave the classroom. All students are subject to the BSU Code of Conduct, available online at [www.bridgew.edu/Handbook/Code.cfm](http://www.bridgew.edu/Handbook/Code.cfm).

**Calculators:** The use of scientific or graphing calculators will be permitted on an assignment-by-assignment basis at the discretion of the instructor. Bring a calculator daily.

**Cell Phones:** The use of cell phones or other electronic devices in class will not be permitted except in case of emergency or other genuine necessity. Students are expected to silence cell phone ringers for the duration of each class meeting, and in the event cell phone use becomes necessary, please do so in the hallway. The instructor reserves the right to ask a student to leave the classroom if cell phone use becomes disruptive to a student’s learning environment, including his or her own. The use of cell phones for any purpose during quizzes or exams is prohibited. This includes the use of a cell phone’s calculator function.

**Collaboration:** Working collaboratively with your classmates on homework assignments and during group activities in class is highly recommended. However, on assignments that are individually administered and individually written, including but not limited to quizzes and exams, no collaboration of any kind will be permitted. Any collaboration during an individual assignment will constitute plagiarism and will be dealt with according to the BSU Policy on Academic Integrity, which may be viewed online at [www.bridgew.edu/Handbook/policies.cfm](http://www.bridgew.edu/Handbook/policies.cfm).

**Computer Use:** Nearly every day in class, you will be using the classroom computers to structure your work on course material both individually and in small groups of up to four. You are expected to remain on task during class — that is, the Knewton browser should be the only tab in the only window on your screen. Use of computers for other purposes, including but not limited to e-mail, chat, Facebook, internet browsing, or work for other courses, will not be permitted. The instructor reserves the right, after one warning, to dismiss a student and/or an entire small group, forfeiting their attendance grade for the class meeting.

**Disabilities:** In compliance with Bridgewater State University policy and equal access legislation, your instructor is available to discuss appropriate accommodations that you may require as a student with a disability. Requests for academic accommodations should be made during the add/drop period, unless there are unusual circumstances, so that appropriate arrangements can be made. Students are encouraged to register with the Disability Resources Office in the Maxwell Library for verification and determination of academic accommodations.

**Suggestions:** Suggestions for improvement are welcome at any time. Any concern about the course should be brought to the instructor’s attention first. Further recourse is available through the Department Chairperson’s office, 215 Hart Hall.
Math Services Tutoring

Mathematics Services offers free tutoring for this course. Math Services is a low-pressure, cooperative environment where you can receive help with your homework, studying for exams, and understanding concepts of the course.

This service is located in the Academic Achievement Center on the ground floor of Maxwell Library, and is open Monday through Friday 8:00–5:00, as well as Tuesday and Wednesday until 8:00 p.m. No appointment is necessary. Further information is available at bridgew.edu/MathServices.

Course Schedule and Important Dates

The dates on this schedule are subject to change. Any changes to exam or due dates will be announced in class and/or via e-mail with at least one week of advance notice.

Since students may progress through course material at different rates, this course will not progress on a uniform weekly schedule. Short topic lectures may be given on an ad hoc basis, which may or may not be announced in advance, when a number of students are working on a common set of material.

Students who have not completed the final exam by the last day of class may sign up to take the exam at one of the two dates listed below. Seats in these exam sessions will be granted on a first-come, first-serve basis. Six Knewton mastery badges, including the Algebra badge, must be completed by the time a student presents to take the final exam, or the exam will not be given.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Agenda</th>
<th>Other Information</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Jan. 19</td>
<td>Welcome; Introduction to Knewton</td>
<td>First day Thurs. 1/19</td>
</tr>
<tr>
<td>1</td>
<td>Mar. 5</td>
<td>Spring Break – March 5-9 – No class</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Apr. 26 (Th)</td>
<td>Last regular class meeting</td>
<td>Reading Day Tues. 5/1</td>
</tr>
<tr>
<td>15</td>
<td>May 3 (Th)</td>
<td>Final Exam Option 1, 8:00–10:00 a.m.</td>
<td>in Harrington Hall 202*</td>
</tr>
<tr>
<td>15</td>
<td>May 8 (Tu)</td>
<td>Final Exam Option 2, 8:00–10:00 a.m.</td>
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</table>

*Please note that the final exam is a pencil-and-paper test. Any use of either classroom or personal computers, or cell phones, during the final exam will constitute a violation of the BSU Policy on Academic Integrity.

Important Note

Students should be aware that this syllabus is a contract between student and instructor. Continued enrollment in this course is contingent on the student understanding and abiding by its policies.

Students are required to sign the last page of this syllabus to indicate their agreement. No final grade for the semester will be awarded if this signed agreement has not been received.

Any changes to this syllabus, with the exception of scheduled dates, will be announced by the instructor and distributed in writing at least one week prior to their taking effect.
The attached syllabus describes the terms and conditions under which the instruction of the above-mentioned course will be delivered; the assessment of student work will be conducted and final grades assigned; and the policies to which students will be held as a condition of their enrollment in the course in good standing.

With the exception of changes to the course schedule, any changes to this syllabus will be announced in class on consecutive days, distributed in class in writing, and e-mailed to the class list, at least one week in advance of the changes taking effect.

Students are reminded that they are expected to attend every scheduled course meeting, and will be held accountable to all the announcements and course material of each class meeting, regardless of whether they were in attendance. This includes changes to the policies on this syllabus as well as changes to the course schedule.

In addition, BSU recognizes only bridgew.edu e-mail addresses as official modes of communication to conduct University business. All communications regarding class content and conduct will be sent exclusively to students’ official bridgew.edu address.

Consent to Syllabus Terms

By signing below, I acknowledge that I have received and read a copy of the attached syllabus and agree to abide by its terms.

I further agree that I will return this signed signature page to the instructor by the end of the drop/add period listed in the Course Schedule, or my continued enrollment in the course may be jeopardized.

Print Name: ________________________________

Signed: ________________________________ Date: ________________________________