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# Math 15000 Pilot Assessment Report, June 2016

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A section of revised Math 15000 course (M) was offered in the Spring semester of 2016 along with a “regular” Math 150 section (L).

In accordance with previous recommendations (June 2015)\* some changes were made in both classes.

**1.** The following topics were eliminated: truth tables, identification of fallacious arguments and testing the validity of an argument by use of Venn diagrams or use of logic. Also the topics of identification of types of studies and sampling methods and evaluation sources of bias in statistical studies were taken out of the course for both classes.

**2.** As previously discussed in the report topics from Algebra were integrated through use of supplementary materials that I have prepared. Topics added included understanding of place values, work with decimals, fractions and mixed numbers, additional work on understanding of percents and word problems applicable to real life situations. Operations on sets and use of Venn diagrams to illustrate these operations were also added. More supplementary material was used to work on solving equations and inequalities and order of operations. All of the above skills are necessary for success in Math 150000. Since current book does not provide enough practice supplementary materials were used in addition to the material in the book on graphing, unit conversion and word problems.

**3.** In a pilot course a semester long group (3-5 people) project was integrated. Two classes during the semester were dedicated to working on the project while the rest of the work was done outside of class. Students reported that working on this project was very helpful in order to utilize skills acquired in class, made them more comfortable with the material of the course, helped to understand connection of Mathematics to real life situations. In addition the project provided an opportunity for writing, creativity and group work.

(One of the final group projects is attached to this report)

**4.** Additional research was done by Ana Vasovic, who looked into results of placement tests and other criteria that allowed students to be placed directly into Math 15000. After examining data for students that have withdrawn or failed the course we discovered that many students who struggled in math 15000 also struggled on the placement test. Some students who should not be in the class were taking it. Therefore, some students who failed would have benefited by a class prior to Math 15000 to help them prepare better.

**5.** **Findings:**

After comparing grades of the regular course and the pilot course the following differences have been discovered:

a) **In the regular (non-pilot) course there were**: 5 A-range grades, 11 B-range grades, 4 C-range grades, 3 D grades and 11 F grades. 6 students withdrew from the course. Out of these 6 students, five withdrew because they were not able to cope with academic work required in this course (this information comes from conversations with instructor).

Out of the 34 students that remained in the regular (non-pilot) class there were a total of 20 passing grades and 14 failing grades (D and F)

b) **In the pilot course there were:** 11 A-range grades, 7 B-range grades, 8 C-range grades, 4 D grades and 3 F grades. 6 students withdrew from the course. Out of these 6 students five withdrew because they were not able to cope with academic work required in this course (this information comes from conversations with instructor).

Out of the 34 remaining students in the pilot course there were 26 passing grades and 7 failing grades (D and F).

**6.** Further **Recommendations:**

a) Further development and incorporation of a semester long, small group (2-3 people), project integrating major topics of the course.

b) Additional textbook review to substitute the current textbook.

c) In absence of a new book, further development and incorporation of supplementary materials.

d) Creation of additional criteria and potential pre-requisites that will help enrollment of students that are better prepared to succeed in this course.

e) Further study of incorporation of non-credit course (computer bases, computer lab) to help students that do not have enough basic skills to get ready for Math 15000.

f) Finalizing course outcomes to better suit educational and life-long goals of students taking Math 15000.

g) Review of potential on-line course work to supplement bookwork in this course.

h) Further development of the syllabus, assignments, supplementary materials and computer base work to enable any new instructor to successfully teach this course.

**Group project description:** The class will be split in groups of 4-5 students. Depending on the size of the class there may be some groups with 4 students. You will chose a foreign country that you wish to visit. All questions are clearly states in the rubric. All computations that have to do with money must be made in both, US and local currencies. Please note that there are 10 graded questions in the rubric and there is additional question 11 that is outside of the table. Individual students must email question 11 to the instructor and you can get up to extra 5% for it. All work and computations must be submitted to the instructor at the time of the presentation. You will submit one packet for the group in which you must clearly state who contributes to what parts of the project.

Closer to the end of the semester your group will present the project in front of the class. The format of the presentation is flexible, however a power point presentation is always a good idea but the choice is yours. Each group will have about 10 min for the presentation.

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**\*June 2016 recommendations**

Math 15000 report and recommendations

Prepared by Dr. Inna Tokar for Office of General Education at the City College, June 2015

In order to come up with recommendations to further strengthen Math 15000 course and improve students learning outcomes the following scope of work has been completed:

1. Previous [report](https://www.ccny.cuny.edu/gened/upload/math-150-fall-2013-report.doc) conducted by the office of General Education and its recommendations were analyzed.

2. Recommendations were solicited from faculty members of the Math department that have extensive experience with Math 15000 course. Some of the suggestions were incorporated into recommendations provided further.

3. The syllabus and current book were carefully examined.

4. Both, general education learning outcomes and departmental learning outcomes were carefully followed in recommendations.

5. An attempt was made to examine curriculum from other colleges that offer similar courses. Unfortunately during the summer it is practically impossible to get in touch with faculty from other Universities.

Based on the findings the following is recommended:

1. Addition of some Algebra topics. Knowledge of algebraic concepts, ability to preform operations with decimals, fractions, percents and exponents fluently and ability to solve equations of various levels of difficulty is necessary for understanding the rest of the material included in the Math 15000 course. It was clear from the previous assessment that students struggle with Algebraic concepts. Furthermore, the aforementioned concepts are necessary for any educated successful member of our society. Therefore, it is recommended that the course starts with a unit on Algebra to further facilitate student’s success in Math 15000 and any other additional Math and or Science course students may take in the future.

2. Current textbook does not provide sufficient material on Algebra. Creation of a workbook with hand select topic is recommended as a supplement.

3. Additional review of textbooks with a goal of choosing the one that better suits the needs of the City College students taking Math 15000 is recommended.

4. In order to improve students interest and ability to communicate quantitate analyses in written and oral form a development of a student project is recommended. A question, relevant to students’ life, could be assigned to everyone in class, which will be researched through the semester and presented in front of the class by the end of semester. This kind of project can provide students with a unique opportunity to create a written/ oral presentation on a topic in mathematics.

4. There is a lot of Statistics in the course. It is recommended that some of the more advanced topics be removed and the remaining topics were made more relevant to student’s lives.

5. It is recommended to eliminate truth tables while leaving the rest of the logic unit intact.

6. Further study is recommended to compare the existing Math 15000 course and the materials used to similar courses in other universities. It would be helpful to be able to solicit input from faculty of other schools offering similar classes.

7. Most of the Math 15000 sections are taught by adjunct faculty. It is highly recommended that the math department offers two hours of paid orientation at the beginning of each semester. This orientation will provide an opportunity for everyone teaching the course to be introduced to the main goals, to exchange information, experiences and ideas. In addition a two hours paid meeting for adjuncts at the end of the semester is also recommended. It will allow faculty to share experiences, strategies and ideas for course improvement and improvements in students learning outcomes.

**PROJECT:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Choose the country you want to travel and create a map or a diagram of showing how you are getting there. Include a map with a scale in both miles and kilometers. |  |  |  |  |  |  |  |  |
| 2. Chose a hotel for your stay. Compute cost of staying in two types of rooms. Chose one and explain your choice. |  |  |  |  |  |  |  |  |
| 3. Chose 3 tourist attractions to visit either on individual tickets or on a bundle ticket. Explain your choice. |  |  |  |  |  |  |  |  |
| 4. Name 3 important statistics about the country you found in your research. |  |  |  |  |  |  |  |  |
| 5. What was the % increase of one of the statistics between 2014 and 2015? |  |  |  |  |  |  |  |  |
| 6. What was the % decrease of one of the statistics between 2014 and 2015? |  |  |  |  |  |  |  |  |
| 7. Rent a car. Compute cost of rental for a week. Create a formula describing the cost of rental. |  |  |  |  |  |  |  |  |
| 8. Create a dinner menu at a local restaurant. Show prices in both, American and local currency. |  |  |  |  |  |  |  |  |
| 9. You came across sale at a local clothing store. There is additional 20% discount after original 30% discount. Chose 2 items to buy and compute your cost in both US and local currency after both discounts.  |  |  |  |  |  |  |  |  |
| 10.You want to see a movie. Compare cost of going to a movie theater in NYC vs. local movie theater.  |  |  |  |  |  |  |  |  |