

# Florida Community College at Jacksonville

## General Education Assessment Pilot MAPP Test Abbreviated Form

Spring 2008

*Revised April 28, 2008*

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### Overview and Purpose

In Spring 2008, FCCJ administered the Measure of Academic Progress and Proficiency (MAPP) Test paper and pencil Abbreviated Form as a pilot assessment activity. This activity was sponsored by the Center for the Advancement of Teaching and Learning as an educational research project and by the FCCJ General Education Assessment Task Force as a pilot for the General Education Assessment Project.

The purpose of this pilot was to get a sense of the paper and pencil test administration and testing experience, as well as to see what types of data and results the institution could use for the General Education Assessment project.

The Measure of Academic Proficiency and Progress (MAPP) test is a measure of college-level reading, mathematics, writing, and critical thinking in the context of the humanities, social sciences, and natural sciences. The MAPP test is designed for colleges and universities to assess their general education outcomes, so they may improve the quality of instruction and learning. It focuses on the academic *skills* developed through general education courses, rather than on the *knowledge* acquired about the subjects taught in these courses (ETS).

“[T]he reading questions and the critical thinking questions represent all three of the academic contexts - humanities, social sciences, and natural sciences - but the number of questions from each academic context in each subform can differ” (p. 7). See **Appendix 1** for the definitions of the skills areas tested by the MAPP. Please note that FCCJ did not select to administer the essay option for the test. This is a computer-based writing assessment that is scored by the ETS ‘e-

rater' computer program. For the mathematic questions, the students were advised that they could choose to bring and use a 4-function, scientific or non-graphing calculator.

The Abbreviated form provides too small a sample of each student's performance to permit the reporting of individual scores (except for total scores). A student who takes the Abbreviated form is actually only taking one-third of the test, and the individual scores are not a reliable indication of the scores the student would have received on the full standard test.

### Overview of Reports

The MAPP Test Abbreviated Form is not intended to provide information about individual students. It is intended to provide information about groups of at least 50 students.

ETS provides criterion-referenced and norm-referenced reports.

- Summary of Scaled Scores for a group of at least 50 students which can be compared to other groups within the institution or with a large combined group of students from several other institutions using the Comparative Data Guide. The Summary of Scaled Scores shows the mean scores for groups; however this information is not as useful for the General Education Assessment project.
- Summary of Proficiency Classifications for a group of at least 50 students (see **Appendix 2**) which can be compared to other groups within the institution or with a large combined group of students from several other institutions using the Comparative Data Guide. Proficiency level includes the percentage of student [in a group] classified as proficient, marginal, and not proficient" (ETS, 2007, p.13). Proficiency levels include a weighting of the questions by ETS. Different subscores may not be comparable to each other (ie. do not compare students' or groups' scores of reading to scores of writing). However, the cut scores for each skill area in the Abbreviated form should be fairly comparable to the cut scores for the same skill area in the Standard Form.

### Available Data

Raw data for cohorts can be downloaded into MS Excel for additional analysis by the institution. However, when using the Abbreviated form, student identifiers such as names or student IDs cannot be downloaded. "[I]t is not possible to compare data from the Abbreviated form administrations to other academic indicators for individual students, such as class grades, GPA, or other test scores" (ETS, 2007, p. 14). The nature of the data does allow us to compare scores and proficiency classifications with academic indicators such as GPA or credit hours earned, without the ability to link back to individual students, instructors, or reference numbers. The demographics in the data are based on students' self-reporting during the testing administration, and is not validated or linked to actual student records in Orion.

FCCJ included additional demographic questions related to program of study and general education requirements. This information will be downloaded to create additional reports and analyze results. However, the raw data from the additional demographic questions may be

available only in scale scores and not in proficiency classifications. Further clarification is needed from ETS.

### Student Sampling and Use of FCCJ's Pilot Data

FCCJ did not use a random sample or spaced sample for this pilot. As mentioned previously, the purpose was to get a sense of the paper and pencil test administration and testing experience, as well as to see what types of data and results the institution could use for the General Education Assessment project. For example, no distance learning classes were included in the pilot. However, ETS does offer a web-based testing option for the MAPP in both a proctored and unproctored administration.

The FCCJ sample included two groups of students: Group 1 included students enrolled in a course that students tend to take in their first or second semester of their associate degree (specifically ENC 1101 English Composition I) and Group 2 included students enrolled in courses that FCCJ students tend to take in their last semester of college level coursework in the associate degree. Please note that there may be students who were enrolled in Group 2 courses who may actually not be at the end of their associate degree program. The demographic data includes self-reported responses about the number of credit hours a student has earned and the amount of their general education program the student has completed. (Faculty who were going to administer the test were asked to announce the test administration at least one day prior to the test date and request that students bring this demographic information with them.) This data will help in analyzing the data in more useful demographic groups than what may result from comparison and analysis of Group 1 and Group 2. However some students may not have completed any of their general education categories at the time of the test administration, and each program may have a different credit hour requirements to satisfy general education.

Furthermore the specific class sections of interest for the study were identified initially from a transcript review and student record analysis. Then full-time and part-time faculty members teaching these sections were invited to participate. Ultimately the sections in which the test was administered included faculty volunteers who were teaching Session 1 (A16), A12, and B8 classes in a total of 40 'face-to-face' class sections across multiple campuses and centers - North, Nassau, Downtown, South, Deerwood, and Kent.

The test was administered in regularly scheduled class periods of the volunteer faculty members' classes. Students were informed that the test results would not be linked to them as an individual student or become a part of the student's academic record. Faculty were surveyed (see **Appendix 3**) after the test administration to inquire about methods of motivating students to take the test, whether a test proctor would have been helpful in their classroom, and suggestions for test administration processes and instructions if the College decided to administer the MAPP test again. Faculty used a variety of means to motivate students to participate in the MAPP test, such as extra credit points, class participation points, ability to help shape assessment project.

In this pilot, 457 students were enrolled in a total of twenty-one Group 1 class sections and 360 (79%) of those students actually participated in the MAPP test administration; 494 students were enrolled in a total of nineteen Group 2 class sections and 364 (74%) of those students actually

participated in the MAPP test administration. Some students were absent the day of the test, or had dropped/withdrawn from the class by the time the test was administered. In a few cases, the student was enrolled in two class sections where the test was administered, and was instructed to only take the test once. 723 or 76% of the total enrolled student population of the volunteer faculty class sections participated in the MAPP test administration.

ETS advises that “it may be adequate to test only a sample of students - but **only** if the sample is selected in such a way that students taking the test **will not differ systematically from those who are not tested**. . . . Students enrolled in particular courses tend to differ systematically from students not enrolled in those courses. . . . The smaller the sample of students from a subgroup, the less likely that the statistics will generalize to the entire subgroup. . . . The greater the proportion of the students in your sample who do not take the test, the more your sample is likely to differ from the population” (ETS, 2007, pp. 20-21).

“The reliability of scores for small groups would be appropriate for evaluating curriculum but not appropriate for teacher evaluation or for group-to-group comparisons, due to influence of very high or very low scores of individual students and group differences” (ETS, nd). Therefore, use of some type of random sample would allow us to make inferences about the larger college credit student population at the institution.

If using a random sample, and want to compare a group to another group, ETS advises that subscores and proficiency classifications are examined as well as total scores to determine if significant differences in group performance might be due to curricular choices as well as student achievement.

It is important to note that we do not know if some or all of the students completed the test with their best effort. Some students may not have approached the test with the goal of an optimal performance.

### Use of MAPP Tests

ETS indicates that colleges and universities typically use MAPP tests for the following reasons:

#### Standard Form

- Measure growth in specific types of skills reflected in subscores or proficiency classifications
- Trend Indicator of scaled scores (different students over time, but same overall groups)
- Comparison with other institutions of scaled scores and proficiency classifications of groups (number of credit hours, and institution type/Carnegie)
- Counseling tool for assisting in placement into courses
- Recruitment aid – to identify students who are likely to benefit from the institution’s instructional programs.

#### Abbreviated Form

- Measure growth or change in overall test score only
- Trend Indicator of scaled scores (different students over time, but same overall groups)

- Comparison with other institutions of scaled scores and proficiency classifications of groups (number of credit hours, and institution type/Carnegie).

### Lessons Learned

*Abbreviated vs. Standard Test Forms* – the Standard form is two hours long, compared to the 40 minute Abbreviated form. Selecting the Abbreviated form allowed the test to be administered in 50 minute class sessions, but did not provide as thorough reports due to the nature of the test. (Apparently the Standard form can be administered in two sittings – this option needs to be investigated further). If the College were to continue to use the Abbreviated form and add the writing essay option, it would require that the test be administered outside of class, or in class sessions that are longer than 50 minutes.

*ETS Demographics vs. FCCJ Demographics (GER and POS)* –

- ETS includes communication courses in the Humanities General Education;
- ETS groups AA and AS together; and
- ETS includes many other names of program groups that would confuse our students and fail to provide us with useful data.

*Additional Questions* – to overcome the issues mentioned in the previous bullets, FCCJ developed additional demographic questions and modified the instructions for the ETS demographics. At this time, ETS does not provide us reports with proficiency level classifications for the students in terms of how they responded to the additional demographic questions. We only received scaled scores. However, it is possible to download this raw data for further analysis.

*Administration issues* – the coordination and administration of the paper and pencil Abbreviated MAPP test in class sections, as opposed to a testing center, was time consuming. ETS expects high standards of test security and test proctoring instructions and scripts that must be communicated to and adhered by each campus and the volunteer faculty members. Test inventories were conducted prior to test distribution and upon receipt of completed tests from the volunteer faculty members. Administering the test during class time took time away from instruction. Since the paper and pencil format was selected, distance learning courses were not included in the test administration.

*Sampling* – it was not helpful to split students into two groups (ENC 1101 and Courses in which students tend to take at the end of their program); if FCCJ would like to develop a baseline, a sampling procedure that can be replicated in future years that will yield informative results is necessary to design.

*Student motivation* – faculty were asked to announce the MAPP test in the class session prior to the day it would be administered. This could, in part, account for the 76% completion rate. About one quarter of the students did not take the test due to absence or due to changing their

enrollment status in the class (ie. student may have withdrawn from the class prior to the announcement of the MAPP). In addition, for those students who completed the test, it is unknown how seriously students approached the test. Some faculty offered extra credit for completing the test and others did not.

*ETS definitions of outcomes vs. FCCJ definitions* – the MAPP test was selected for a pilot prior to FCCJ defining communication skills outcomes, critical thinking skills outcomes, and quantitative reasoning. Now that these definitions have been developed, a team of faculty will need to compare the FCCJ definitions to the ETS definitions that were used to design the MAPP test. If the MAPP test does not match the FCCJ definitions, discussion on FCCJ's future use of the MAPP should occur. If, for example, the communication skills outcome definitions match, but the quantitative reasoning definitions do not, the MAPP test cannot be broken apart. The test, either Abbreviated or Standard, must be administered in its entirety. The only optional piece is the writing essay. But the test must include the reading, English language and quantitative portions.

*Actionable results* – proficiency classification data seems to be much more useful than scaled score data in terms of the General Education Assessment project. Once available data is analyzed and reported, the General Education Assessment Task Force should discuss whether the types of data and results from ETS MAPP are applicable to our institution's assessment purposes and could be used as the basis for future actions.

#### References:

Educational Testing Service (ETS). (2007, July 1). MAPP User's Guide. Retrieved April 8, 2008, from [http://www.ets.org/Media/Tests/MAPP/pdf/MAPP\\_Users\\_Guide.pdf](http://www.ets.org/Media/Tests/MAPP/pdf/MAPP_Users_Guide.pdf).

Educational Testing Services (ETS). Measure of Academic Proficiency program workshop: About scores and reports. Retrieved April 8, 2008, from <http://www.starttest.com/4.0.0.1/starttest.aspx?cmd=login&program=mapp&type=institution&target=order&limit=one>.

## **Appendix 1:**

College-level reading questions measure students' ability to:

- Interpret the meaning of key terms
- Recognize the primary purpose of a passage
- Recognize explicitly presented information
- Make appropriate inferences
- Recognize rhetorical devices

College-level writing questions measure students' ability to:

- Recognize the most grammatically correct revision of a clause, sentence, or group of sentences
- Organize units of language for coherence and rhetorical effect
- Recognize and reword figurative language
- Organize elements of writing into larger units of meaning

Critical thinking questions measure students' ability to:

- Distinguish between rhetoric and argumentation in a piece of nonfiction prose
- Recognize assumptions
- Recognize the best hypothesis to account for information presented
- Infer and interpret a relationship between variables
- Draw valid conclusions based on information presented

Mathematics questions measure students' ability to:

- Recognize and interpret mathematical terms
- Read and interpret tables and graphs
- Evaluate formulas
- Order and compare large and small numbers
- Interpret ratios, proportions, and percentages
- Read scientific measuring instruments
- Recognize and use equivalent mathematical formulas or expressions

(ETS, 2007, p. 4)

## Appendix 2:

### Proficiency Measures

#### Reading/Critical Thinking

To be considered proficient at **Level 1**, a student should be able to:

- recognize factual material explicitly presented in a reading passage
- understand the meaning of particular words or phrases in the context of a reading passage

To be considered proficient at **Level 2**, a student should be able to:

- synthesize material from different sections of a passage
- recognize valid inferences derived from material in the passage
- identify accurate summaries of a passage or of significant sections of the passage
- understand and interpret figurative language
- discern the main idea, purpose or focus of a passage or a significant portion of the passage

To be considered proficient at **Level 3**, a student should be able to:

- evaluate competing causal explanations
- evaluate hypotheses for consistency with known facts
- determine the relevance of information for evaluating an argument or conclusion
- determine whether an artistic interpretation is supported by evidence contained in a work
- recognize the salient features or themes in a work of art
- evaluate the appropriateness of procedures for investigating a question of causation
- evaluate data for consistency with known facts, hypotheses or methods
- recognize flaws and inconsistencies in an argument

#### Writing

To be considered proficient at **Level 1**, a student should be able to:

- recognize agreement among basic grammatical elements (e.g., nouns, verbs, pronouns and conjunctions)
- recognize appropriate transition words
- recognize incorrect word choice
- order sentences in a paragraph
- order elements in an outline

To be considered proficient at **Level 2**, a student should be able to:

- incorporate new material into a passage
- recognize agreement among basic grammatical elements (e.g., nouns, verbs, pronouns and conjunctions) when these elements are complicated by intervening words or phrases
- combine simple clauses into single, more complex combinations
- recast existing sentences into new syntactic combinations

To be considered proficient at **Level 3**, a student should be able to:

- discriminate between appropriate and inappropriate use of parallelism
- discriminate between appropriate and inappropriate use of idiomatic language
- recognize redundancy
- discriminate between correct and incorrect constructions
- recognize the most effective revision of a sentence

## Mathematics

To be considered proficient at **Level 1**, a student should be able to:

- solve word problems that would most likely be solved by arithmetic and do not involve conversion of units or proportionality. These problems can be multi-step if the steps are repeated rather than embedded.
- solve problems involving the informal properties of numbers and operations, often involving the Number Line, including positive and negative numbers, whole numbers and fractions (including conversions of common fractions to percent, such as converting "1/4" to 25%)
- solve problems requiring a general understanding of square roots and the squares of numbers
- solve a simple equation or substitute numbers into an algebraic expression
- find information from a graph. This task may involve finding a specified piece of information in a graph that also contains other information.

To be considered proficient at **Level 2**, a student should be able to:

- solve arithmetic problems with some complications, such as complex wording, maximizing or minimizing, and embedded ratios. These problems include algebra problems that can be solved by arithmetic (the answer choices are numeric).
- simplify algebraic expressions, perform basic translations, and draw conclusions from algebraic equations and inequalities. These tasks are more complicated than solving a simple equation, though they may be approached arithmetically by substituting numbers.
- interpret a trend represented in a graph, or choose a graph that reflects a trend
- solve problems involving sets; problems have numeric answer choices

To be considered proficient at **Level 3**, a student should be able to:

- solve word problems that would be unlikely to be solved by arithmetic; the answer choices are either algebraic expressions or numbers that do not lend themselves to back-solving

- solve problems involving difficult arithmetic concepts such as exponents and roots other than squares and square roots and percent of increase or decrease
- generalize about numbers, (e.g., identify the values of (x) for which an expression increases as (x) increases)
- solve problems requiring an understanding of the properties of integers, rational numbers, etc.
- interpret a graph in which the trends are to be expressed algebraically or one of the following is involved: exponents and roots other than squares and square roots, percent of increase or decrease
- solve problems requiring insight or logical reasoning

(ETS, 2007, pp. 9-11).

### **Appendix 3:**

#### **Faculty Survey**

#### **Comments from Faculty who Administered the Paper and Pencil Abbreviated MAPP Test in their Class Sections February 2008**

##### **1. How did you motivate the students to take the test?**

- I advised the students that in no way would the results of the test compromise their standing at FCCJ. Rather, this was a test to determine that we, as faculty and administrators, were providing the best possible educational experience for our students. Prior to the test, we did a mock "objective" test and discussed test taking strategies. I also brought candy the day of the test to alleviate their anxieties and to create a relaxed environment.
- I bribed them with 15 points of Extra Credit..... I also told them I would look over the answer sheets and if it appeared they had "Christmas treed it", they would not get extra credit. I also told them that it should take most of the allotted time to take the test, if it did not take them most of the allotted time, then I would have my doubts about the level of their effort.
- I basically just asked the students to do the best they could for me. I really didn't know specifics about the test so it was hard to give them much insight on what was going on.
- I gave them the usual class credit for coming that day to take the test.
- I gave them 4 points extra credit just to take it (and then take their scheduled test on their own time in our testing center. (They took the MAPP with me, but in order to avoid losing a day, I let them take what was to be a regularly scheduled in-class test in the testing center. I gave them a 3-4 (Day???) window to take their regular test to try to spread it out a little for the testing center.)

- I gave students a free 100 on a quiz for showing up to take the test that day.
- I counted the test as an assignment and gave them points.
- I told them they were a part of an important change in education in Florida and were a “special” and “chosen” class.
- To motivate my students I first told them why we were doing the test. That is to try and find a tool to help the college assess whether students were learning what we said they should learn. Additionally, I gave each of my students 50 extra credit points. They can generally earn about 250 extra credit points during a term so the test amounted to about one fifth of the total.
- I actually offered my students points just as I would in other written activities or group activities in my class. Usually when the students participate in group activities, they have the ability to earn 10 points. On the evening of the test, they were given 10 group activity points for their participation. Actually, this class was a terrific group of students and were happy to participate. Everyone except for one student participated. The only reason she did not was because she was late for class that evening.
- I offered them bonus points as well as told them that they had the opportunity to participate in an important project that would help to determine whether the college would be administering the test to students in the future.
- I told them they would receive class credit.

**2. From your observation of the students, did they appear motivated to take the test and try to do their best? If you administered the test in more than one section, were there any apparent differences in student interest/motivation?**

- I was assigned only one section. The students were motivated to do their best and several commented, "We want to do a good job, Dr. Clark, to make you look great." There was a feeling this was a cooperative venture. Although we strictly adhered to the test requirements, there was a generally relaxed feeling among the students and I alleviated any anxiety by stating that if a student felt a question was beyond his or her comprehension, that was expected. I also wrote on the board, "Do your best and you'll exceed the rest."
- Yes. I saw the same wrinkled brows I do any classroom exams. Same nervous behavior -- leg bouncing and ceiling gazing.
- Most of my students worked very hard on the test. It appeared that I had two students finish the test too quickly.
- I only had one section. Most of the students were not motivated and did not want to take the test.
- I think so, but I really couldn't tell if they were motivated. I could observe any difference in the two sections that I administered.
- I think the students took the test seriously. Several of my students told me the test was quite difficult.
- I felt as if the students took the test seriously.
- Yes, they all brought their calculators and answers to the questions about their program of study. Most of them used the entire time permitted.

- I do **not** know if my Macroeconomic (ECO 2013) students did their best. There was some grumbling about having to take a timed test, though most seemed to finish in the time allotted. My Microeconomic (ECO 2013) students seemed much more motivated and did not complain about the time limit. The Microeconomic students are older, more mature and are generally my best students. They also seemed to appreciate more the reason for the test.
- The students seemed very motivated for the test, and I think they did their best. We completed the test administration in one sitting. Many of the students were finished before the allotted time expired. Also, when I asked the students how they thought they did, the majority felt they did well. I also asked them if they found the test to be difficult, and the majority responded that they did not find the material too difficult.
- From my observations, the students seemed to give the test their best effort. I did not see anyone rushing through it, and I saw a number of students going back to read over sections that they had already been over.
- They were not very excited about taking the test at all.

**3. Do you think that it would have been helpful to have a proctor assisting you in administering the test?**

- No. A proctor would have added to an anxiety level and therefore students would not have done their best.
- No. The classroom is tight in space. Adding even one more person would have been more of a hindrance than a help.
- No, not for 24 students.
- It would have been better to have someone familiar with the test to administer it.
- It couldn't hurt, but if there is no real motivation for students to put forth maximum effort, I'm not sure how much of an effect that will have.
- No – it was easy enough to proctor.
- I did fine on my own.
- No, I don't think it was necessary.
- It would have been helpful to have a proctor. It would have speeded up passing out, collecting and accounting for the exams and answer sheets.
- Not really. It was relatively easy to do.
- I don't think that it was necessary to have another proctor with me to administer the test.
- I don't think a proctor was necessary.

**4. If the college were to do this again, do you have suggestions or recommendations for test administration process and instructions, including the demographic/course history section at the beginning, administering the test in a class period, etc.?**

- Many of our students have had little experience with test taking skills. I spent a class period before the test teaching these skills and the students, therefore, felt motivated to do their best. Perhaps the college might think about a pre-test skills session. I was surprised that many students have had bad experiences with the FCAT and approached this test with a high degree of uncertainty and fear of failure. The pre-test session helped alleviate these fears.
- Do all the sections for that time slot in the Wilson Center or some similar setting. I told them beforehand that it was an SAT style test. They immediately asked if they would be testing in a room other than the classroom.
- It would be much better if the answer sheets were already complete for the students; and a couple of the directions on the completion of the answer sheet seemed to not match the answer sheet. If we simplify the start process I think we can complete the whole testing procedure in one hour so that we don't have to lose much class time.
- Have someone who is familiar with the test (not faculty) to administer the test.
- I did not like having to work around losing a class period and then inundating our testing center. I think it should be administered by the assessment centers.
- If the college really wants all this information, maybe the students should fill out the answer sheet on a different day from the one on which they are given the test.
- No, the instructions were very clear.
- Is there a way to do the demographic information automatically based upon the student's id? That part seemed to take a long time. I gave that information to my students two class periods in advance and to receive their jps they had to bring it to the exam. Is there a reason the exam is timed? While my students had enough time, if we would have said they had an hour, there would have been fewer complaints.
- I would like to have had the instructions for the test ahead of time so that I would have been more familiar with the administration of the test as well as the content of it so that I would be more prepared. The only confusing element about the beginning of the test was the part where the social security number was supposed to be entered in reverse order, and I believe the last 4 digits were to be entered first.
- I don't have any suggestions. I think the process was smooth.

**5. Any other comments or suggestions about the test.....**

- Reminds me of all those tests we administered in high school.
- The main recommendation I have is that I think my students would have responded perhaps more favorably, if a proctor, very familiar with this test, would have explained specifics regarding its purpose. I did my best, but I think it is possible that this factor might make a difference for future MAPP tests.
- I do **not** know how to properly motivate the students. If a test was used by colleges as part of admission to the last two years, then AA students would be more motivated. I would prefer that the test was not given

during regular class time (when do you give it?) as I am always short of time, particularly in Macroeconomics. Should this test or one like it be given at the end of the students program? What are we trying to assess? Do we want to know if students completing our program achieved some level of outcome, or how much they improved while they were here? Is it possible to have five or ten questions on student's final exams in various courses to see how they did. This would motivate them as they are competing for a grade. But the questions would have to be different for various courses. Which sections would you choose? All of them? Another advantage of this approach is that we could tell in which courses they are achieving (or not) the desired outcomes.

- No, I was happy to help.