I. Welcome and Introductions

II. Review Past Meeting Minutes
   - Follow-up on action items
     - Differential equations template
     - Valencia-UCF Shared Assessment

III. Revisit Calculator Recommendation (MAC1105, MAC1114, MAC2312, STA2023)

IV. Include Differential Equations (MAP2302) in Alignment Discussion
   - Topics and Learning Outcomes

V. Learning Outcomes
   - MAC 2312, 2313

VI. Review of STA 2023 Topics and Learning Outcomes

VII. Lunch Break – 12:00pm (will be provided)

VIII. Curriculum Alignment Handbook

IX. Set Fall Meeting Date and Identify Host

X. Adjourn
Meeting began at 10:00 a.m.

PARTICIPANTS
Nathan Baker, Valencia College; DeAnn Bohm, Eastern Florida State College; Joseph Brennan, University of Central Florida; Kirby Brown, College of Central Florida; Lisa Cohen, Valencia College; Amy Comerford, Valencia College; Jody DeVoe, Valencia College; Katie Donoghue, Lake Mary High School; Teresa Dorman, University of Central Florida; Lori Dunlop-Pyle, University of Central Florida; Julie Edstrom, Seminole State College; Pat Ferguson, Seminole State College; Barry Gibson, Daytona State College; Carolyn Guzman, Hagerty High School; Karen Lanctot, Lake-Sumter State College; Maryke Lee, Valencia College; Tony Maralet, Seminole State College; Daniel Marulanda, Lake-Sumter State College; Jim McCloskey, Valencia College; Turi Moore, Seminole State College; Tammy Muhs, University of Central Florida; Grace Nasnas, Seminole State College; Harrison Oonge, University of Central Florida; Bethany Parmer, Lake-Sumter State College; Angelia Smith, University of Central Florida; Tess St. John, Seminole State College; Christina Thompson, Seminole State College; Daniel Triolo, Lake-Sumter State College; Sidra Van De Car, Valencia College; Lina Williams, Seminole State College; Steven Zimmerman, Seminole State College.

WELCOME/INTRODUCTIONS
Teresa Dorman called the meeting to order and introduced Harrison Oonge, Assistant Dean, Academic Planning, College of Undergraduate Studies. Teresa Dorman asked participants to introduce themselves.

REVIEW PAST MEETING MINUTES
The minutes were reviewed from the March 18, 2016 meeting. Teresa informed the participants that she had received Calculus II learning outcomes but had not received Calculus III learning outcomes. Teresa stated that the learning outcomes for Calculus III may need to be recreated. Teresa also informed the group that data is available on the website.
- (Data Available) The grid indicating course hours for math courses had been completed and posted on the website.

The minutes were approved unanimously.

REVISIT CALCULATOR RECOMMENDATION (MAC1105, MAC1114, MAC2312, STA2023)
Teresa informed the group that Chemistry, Physics, and Engineering instructors are indifferent as to calculator use. The original recommendation was reviewed:

*The Mathematics Alignment faculty recommend the use of scientific calculators in class, but with some portion of the course demonstrating the ability to put “pencil to paper.” Know the technology being used in the course.*

Discussion followed:
Minutes

- Tony Maralet (SSC) indicated that the use of a graphic calculator do not enhance students’ abilities and skills in math. Suggested that some calculators such as the TI-89 can inhibit a student's skill development.
- Carolyn Guzman (Hagerty High School) informed the group that high school students are allowed to use calculators during some sections of their AP exams. Carolyn indicated that graphic calculators have functionalities for real-world modeling. Carolyn also informed the participants that for courses below AP, the calculator is used as a discovery tool.
- Amy Comerford (Valencia College) argued that with authentic assessment, a student can demonstrate the learning outcomes with or without the use of a calculator. Valencia shared the calculator recommendation with its faculty.
- Jody DeVoe (Valencia College) lamented that some calculators have WI FI and memory and should therefore be checked during exams to be sure that no problems/formulas/equations have been stored.
- Joseph Brennan (UCF) asked if partner institutions have policies regarding photo math.
  - Tony Maralet indicated that students are not allowed to carry cellphones, but are allowed to use calculators for a test. At Seminole State College, they do not allow watches at all.
- Tammy Muhs (UCF) indicated that instructors have an obligation to teach students the use of technology, thus the need to construct tests that have questions with and questions without calculators. UCF does not allow use of calculators in Calculus I or Calculus II. However, in engineering courses, students are taught how to use calculators. Lori Dunlop-Pyle (UCF) indicated that UCF will not change its policy.
- Carolyn Guzman also indicated that high school students will not stop using calculators.
- Upon reflection, Joseph Brennan pointed out that calculators are learning tools and the desire is for students to have a geometric understanding. Calculators are not used in Calculus I as you want students to develop geometric understanding from analytic.
- Steven Zimmerman (SSC) observed that calculator use should involve a measure of balance and good judgment.
- Pat Ferguson (SSC) pointed out that they try to encourage students to finish their Calculus sequences before they transfer to another institution. Pat also suggested using the CA website to see the syllabi for all partner state colleges as well as UCF and assess what calculators are being used for in each course - this may help to further alignment amongst the courses.
- Kirby Brown (College of Central Florida) indicated that in college algebra students do not use graphing calculators.

After the discussion, the group determined that the original recommendation made in the March 18, 2016 meeting was sufficient in moving forward with alignment.

TOPICS/SUB-TOPICS – MAC 2312 (Calculus with Analytic Geometry II)
Teresa Dorman reviewed the topics and sub-topics for MAC 2312 (see attached) and asked the participants if all were in agreement of items listed.

- Several participants commented on approximation techniques. It was stated that UCF does not cover approximation techniques in Calculus II. Topics updated per discussions.
- Per past discussions, Teresa emphasized that students who start a sequence at an institution should complete the sequence at the same institution.
Teresa also commented on excess hours, stating that when a student transfers into UCF with an AA degree they start at 60 hours regardless of how many hours they used to complete their AA degree. This is only if they enter into UCF with a declared major but if they enter into UCF as undecided then all credits will count.

- A comment was made as to contact hours (which vary based on institution) and credit hours.
- A few suggested changes were made to the topics/sub-topics list for MAC 2312.

**STATISTICS TOPICS AND LEARNING OUTCOMES**
Teresa Dorman reviewed the Statistics topics and learning outcomes (see attached) that were developed in the March 18, 2016 meeting. Teresa asked if any changes/updates needed to be made.

- Inclusion of Chebyshev’s theorem as mandatory was questioned
- Another participant mentioned that often times for engineering students taking EGS2025: The Probability and Statistics for Engineers it is assumed knowledge and if not taught in Statistics then there is a disconnect.
- A few suggested changes were made to the topics/sub-topics list for Statistics. The list of topics and sub-topics will be posted to the CA website.

Harrison Oonge will be sending a survey in several weeks for your feedback in topics for the Curriculum Alignment Conference as well as the next Mathematics/Statistics CA meeting in February 2017.

**ASSESSMENT: HOW DO WE KNOW WE ARE ALIGNED?**
Harrison Oonge presented thought provoking questions for feedback as they relate to engaging internal alignment – which is critical cross-cultural alignment.

- Ease of transfer
  - Student success as evident by grade in subsequent course.
  - Continue use of course sequence data
- Assess graduation rate
  - Years to graduation after transfer
- Survey students – UCF has a proficiency quiz in Calculus I of prerequisite knowledge. **Action item:** UCF should be prepared to share an overview of results/findings
- Conduct a document analysis of syllabi
- What conversations are happening at the different institutions to help the CA effort?
- Are Institutions internally aligned? **(Data Available)** Document of internal alignment will be shared with minutes

**LUNCH BREAK WAS HELD FROM 12:00 – 1:00PM**

**LEARNING OUTCOMES – MAC 2313 (Calculus with Analytic Geometry III)**
Jim McCloskey (Valencia College) provided the course topics/sub-topics spreadsheet (see attached). Teresa will update this with the state description and post to the CA website.

Joseph Brennan informed the group that UCF is revising its Ordinary Differential Equations (ODE) course, and he is aware of what is currently being offered at Valencia College and Seminole State College and that knowledge will be helpful in alignment.
Action Item:
- ODE will review all the topics that are covered in the course
- Add a footnote (for all subject areas) indicating that students should complete course sequence in the same institution

CURRICULUM ALIGNMENT (CA) HANDBOOK
Teresa presented the CA handbook and informed the group that the handbook is a product of the Foundations of Excellence (FOE) effort. The handbook will be attached to minutes and any constructive feedback is welcome. Teresa indicated that the goal of the handbook is to provide a guided path for new disciplines to join the curriculum alignment effort.

The next steps for CA as listed in the handbook include pedagogic challenges, continuous review, and sharing of data.

OPEN DISCUSSION
Tony Maralet indicated that MAC 1147 (MAC 2147) is taught at UCF (as a part of the EXCEL program), Seminole State College, Eastern Florida State College and College of Central Florida, but not at Lake-Sumter State College or Valencia College. Teresa suggested having a more in-depth conversation to review this course and its outline. It was noted that MGF courses are terminal courses and therefore do not require alignment. UCF faculty members indicated that terminal courses should not be involved in the curriculum alignment initiative.

Action Item:
- Tony Maralet and Kirby Brown are to begin building a template for MAC 1147. This will be reviewed at the February 24th meeting and once finalized it will be added to the toolbox.
- MAC2233 Business Calculus may also be considered for curriculum alignment (follow-up at next meeting)

Teresa introduced the topic to gather insight about any discussion of the relevance of mathematics to the degree that student are pursuing. For example, do you teach College Algebra differently for students not following the Calculus track? Do you know you are teaching to a variety of majors and how they may (or may not) need your course for progression? Discussion ensued.

SPRING MEETING DATE AND HOST
The spring Mathematics Curriculum Alignment meeting was scheduled for Friday, February 24, 2017 with Lake-Sumter State College offering to host on their South Lake (Clermont) campus.

The spring 2017 Curriculum Alignment Conference is scheduled for Friday, March 3, 2016.

The meeting adjourned at 2:00 p.m.