

# Meeting Minutes: Committee on Mathematical Subjects

## Meeting Minutes Academic Advisory Committee on Mathematical Subjects April 25, 1998

University System of Georgia

Academic Advisory Council

<b>Committee Name:</b>	Mathematical Subjects (ACMS)
<b>Chair:</b>	Ashok Kumar
<b>Phone:</b>	912-333-5778
<b>Date of the Meeting:</b>	April 25, 1998

### MEMBERS IN ATTENDANCE at the Business Meeting

Eric Carlen	Georgia Institute of Technology
Jean Bevis	Georgia State University
Kevin Clancey	University of Georgia
Arthur Sparks	Georgia Southern University
Ashok Kumar	Valdosta State University
Fred Maynard	Augusta State University
Catherine Aust	Clayton College & State University
Richard Gibson	Columbus State University
John Robertson	Georgia College & State University
Ron Biggers	Kennesaw State University
Ed Green	North Georgia College & State University
Kathleen Hall	Southern Polytechnic State University
John Morrell	Atlanta Metropolitan College
William Snyder	Bainbridge College
Mary Jones	Coastal Georgia Community College
Barbara McLendon	Darton College
Richard Trimble	Floyd College

Katheryn Hunt	Gainesville College
Allen Fuller	Gordon College
Jim Robertson	Macon State College
Jerry Smith	Middle Georgia College
Charles Douglas	South Georgia College
Jim Helms	Waycross College
<b><i>Others in attendance at the Business Meeting</i></b>	
Shinemin Lin	Savannah State University
John Gordon	Southern Polytechnic State University
Merle Bass	Abraham Baldwin Agricultural College
Vince Postell	Dalton College
Virginia Carson	DeKalb College

The Academic Advisory Committee for Mathematical Subjects met April 24-25, 1998, at Coastal Georgia Community College in Brunswick, Georgia. Committee members participated in Faculty Development Sessions from 1:15 to 5:45 P.M. on Friday, April 24. The first session presented several informational items. Kathleen Hall of Southern Polytechnic State University reported on the work of the Council on General Education in reviewing the Regents' Testing Program. She summarized some of the important issues under consideration and directed the committee's attention to the question of whether there should be a mathematics portion added to the program. She then distributed copies of the "Regents' Test Survey" and asked that each institution represented respond to question 5 (concerning the addition of a mathematics assessment) and return the survey forms to her to be forwarded to the Council on General Education. Catherine Aust distributed informational material about the Georgia Early Mathematics Placement Testing Program. This program is administered by the Center for Education Integrating Science, Mathematics and Computing at Georgia Tech on behalf of the Board of Regents. The premise of the program is that, if high school juniors take preliminary college mathematics placement tests, they can use information about their performance levels to inform their selections of mathematics courses to be taken in the senior year. Testing of selected college freshman to provide comparison data and of selected high school juniors on a pilot basis occurred in February, 1998. As the program progresses mathematics departments within the University System will receive requests for information to be used in informing the high school juniors of their results. The last part of the session was devoted to a discussion of the Information Technology projects at Floyd College and at Clayton College & State University. At these colleges each student pays a technology fee. In return the student is issued a notebook computer, a student email account, Internet access, and technical assistance. Richard Trimble of Floyd College discussed changes made in mathematics instruction at Floyd as a result of universal student access to notebook computers. The discussion covered a range of topics from facilities renovation to issues of curriculum. He demonstrated a CD-Rom in use in a number of the mathematics classes. Catherine Aust discussed similar topics as they related to Clayton College & State University and

demonstrated software adopted at Clayton State: Studyworks for Math by MathSoft, Inc. Throughout both presentations there was a lively exchange of questions and answers about logistics, student response and effects on mathematics instruction.

In the second faculty development session, David Boyd of Valdosta State University gave a multimedia presentation filled with examples of appropriate uses of the graphing calculators to enhance instruction in lower division mathematics courses. In the last session Jim Herod of Georgia Tech demonstrated his innovations in calculus instruction at Georgia Tech utilizing Maple software as a basis for class notes. He also discussed his philosophy of appropriate uses of computer technology in mathematics instruction. Within these two sessions there were numerous examples and suggestions of appropriate uses of calculator and computer technology within the college mathematics classroom.

### **Minutes of the Business Meeting - Subcommittee Reports**

The business meeting was called to order by the chair Ashok Kumar at 9:00 A.M. on Saturday, April 25. Reports from each of the subcommittees were scheduled for the first part of the business meeting.

Elections to Executive Committee: Dr. Kumar reported for the Executive Committee in its role as nominating committee for membership on the Executive Committee. John Morrell of Atlanta Metropolitan College was presented as the nominee to serve as Chair-elect of ACMS for 1998-99 and hence Chair for 1999- 2000. Dr. Kumar asked if there were additional nominations from the floor. Arthur Sparks moved that the nominations be closed, and John Morrell was elected by acclamation. Dr. Kumar then presented the following slate of nominees to complete the Executive Committee, noting that the current Chair-elect Catherine Aust will become Chair for 1998-99 and that 1998-99 Chair-elect John Morrell will fill the position of Two-Year College Representative.

Research University Representative:	Eric Carlen, Georgia Institute of Technology
Regional University Representative:	Ashok Kumar, Valdosta State University
State University Representative:	Fred Maynard, Augusta State University

Dr. Kumar asked if there were additional nominations from the floor. Kathleen Hall moved that the nominations be closed, and the slate was elected by acclamation.

Achievement and Placement Tests: Chair John Robertson, of Georgia College & State University, reported that due to the press of semester conversion activities, the subcommittee had not been able to undertake the planned study of use of mathematics placement and achievement tests at University System institutions. He recommended that next year's subcommittee be active in this area. Committee member Kathleen Hall reminded the membership of the Mathematics Placement Survey she did in Fall, 1997, due to her membership on the committee convened by the Board of Regents to initiate the Early Mathematics Placement Testing Program. She indicated that printed copies of the survey, including both individual responses and a summary chart, were available at the meeting.

Assessment of the Major: In the absence of Chair John Stroyls (due to a personal emergency), Kathleen Hall presented the subcommittee report. Most institutions in the University System responded to the subcommittee's request for information about "changes in assessment procedures, especially projected changes that will be implemented in the semester system," by indicating that no changes were anticipated. There were three exceptions. (1) North Georgia College & State University now has all students doing a senior project. (2) Valdosta State University will use a combination of alumni survey results at one and five year intervals tracking graduates in future educational and employment endeavors, a capstone experience course, and a "program exit questionnaire" to assess the major. (3) Georgia Southwestern State University will drop its capstone experience course and maintain its senior exit interview, its graduate survey, and its independent project requirement for all mathematics courses starting with Calculus II. All independent projects will form a student portfolio that will be used as an additional program assessment document. In addition, qualified students will be encouraged to do a senior honors thesis, which will entail monitored research with a member of the mathematics faculty. The quality of this work will also be used to assess the level and effectiveness of the program.

Curriculum and Transfer of Credit: Chair John Morrell reported issues considered by the subcommittee: appropriate courses for areas A and D and the division of topics in the calculus sequence. There was a discussion about problems with certain majors needing to take specific courses in Areas A or D, but transfer institutions being obligated to accept the courses taken, whether a student has taken the recommended courses or not. There was clarification that a number of majors, including mathematics, computer science, chemistry, and physics, require precalculus in Area A and Calculus I in Area D. If students have taken Mathematical Modeling or College Algebra in Area A and transfer as one of these majors, they can be held to the requirements for these majors, since the requirement is the same for these majors throughout the system. The subcommittee had requested information from system institutions about the division of topics in the calculus sequence and found a great deal of standardization but not uniformity. To assist in the advising of transfer students, the subcommittee plans to develop a matrix of the topics included in each semester of calculus at each institution. Eric Carlen reported the planned calculus curriculum for Georgia Tech. He stated that under the semester system students would need to have had Linear Algebra as well as Calculus I and II to be ready for Calculus III at Georgia Tech. He also indicated that for the next two years Georgia Tech will conduct special transition mathematics courses and will work with transfer students to determine mathematics course placement.

Course and Textbook Information: Chair Jim Robertson, of Macon State College, gave the annual update of texts, calculators, and software used in lower division mathematics courses within the system. He noted that he had good response this year and that he appreciated the help of all who responded. He distributed printed lists of those institutions which had updated information in April 1998, of special calculators required in courses at various institutions, of software used in math courses, and of the textbook at each institution for each of the generic course titles for lower division courses. Some corrections and additions were contributed from the floor. Jim noted that the textbook list includes much information about intended practice under the semester system: the new course numbers, the semester-hour structure, and course prerequisites. He observed that he had used the list to count that 50% of the institutions have both Mathematical Modeling and College Algebra, six have only Mathematical Modeling, and six have only College Algebra. An item on the textbook list by generic course title prompted a discussion of the appropriate title for the calculus course normally taken by majors in business

administration. Kathleen Hall noted that, as a member of the Council of General Education, she had written letters to several institutions about course titles that appeared to make their courses major specific and, therefore, not appropriate for Area A or Area D. She emphasized that the appropriate title for the course is "Survey of Calculus" and that course descriptions need to be carefully written to indicate that content includes topics relevant for majors in certain areas but should not be worded to make the courses major specific. Eric Carlen noted that most institutions seemed to require Calculus II as a prerequisite to their linear algebra courses. He noted that it would be advantageous to transfer students if they could take Calculus II and Linear Algebra during the same semester and asked that institutions reconsider having the Calculus II prerequisite for Linear Algebra.

Distance Learning: Chair John Robertson noted that this new subcommittee did not undertake any major project this year and recommended that next year's committee collect information about which courses are being taught by distance learning and whether they are using GSAMS, Internet, or other means. He observed that not every course or instructor meshes well with the distance learning approach and that, once information is collected, ACMS may choose to make some recommendations relative to mathematics courses and distance learning.

Faculty Development: Chair Catherine Aust stated that the activities of the subcommittee were focused on the organization of Friday afternoon's faculty development sessions. She indicated that the subcommittee would like to solicit input about topics for next year's faculty development program. She noted that with advance planning it might be possible for ACMS to request funds from the USG Grants to Academic Advisory Committees in order to finance special development activities for next year.

National Mathematics Achievement: Shinemin Lin of Savannah State University discussed the upcoming National Mathematics Awareness Week and encouraged all institutions present to engage in activities to promote and celebrate the week. He detailed the activities planned at Savannah State; these included a visiting lecturer on Monday, a faculty lecture on Tuesday, hosting a tour of the new computer lab for local junior high and high school students on Wednesday, a student lecture series on Thursday, and a panel discussion by alumni about their experiences in the business and graduate school on Friday.

Executive Committee: Chair Ashok Kumar reported that there were no requests from the Board of Regents that required Executive Committee action during the year. On behalf of the entire ACMS committee, Dr. Kumar thanked Mary Mitchell Jones for the wonderful job she did in making arrangements for the meeting and Coastal Georgia Community College for its hospitality in hosting the meeting. Mary Mitchell Jones then continued the hospitality by distributing several door prizes she had obtained for the meeting. After the door prizes were claimed, Dr. Kumar reported that he had just conferred with Kathy Sisk, Chair of the Computer Science and Systems Analysis Academic Committee, which was meeting simultaneously in the next room. He said that they invited us to meet with them again next year and suggested that a meeting site in the center of the state would be preferred. John Robertson volunteered Georgia College & State University to host the joint meetings, and ACMS accepted the invitation on behalf of both ACMS and ACCS.

### **Meeting with Board of Regents Representative**

Dr. Zinsmeister, Board of Regents Representative to the Academic Committee on Computer Science and Systems Analysis, lead the next portion of the meeting. She indicated that she was meeting with us on behalf of Kathleen Burke, the Board of Regents Representative to our Academic Committee on Mathematical Subjects and that Kathleen sent her regrets in being unable to meet with us.

Dr. Zinsmeister discussed the calendar of Board of Regents' activities and ways of getting the calendar. She noted that it is available at the Board of Regents Web site and urged those who have not received the calendar through other avenues to avail themselves of this source of information about upcoming activities.

Dr. Zinsmeister discussed the deadline for the next round of USG Grants to Academic Advisory Committees and gave the appropriate forms to the Chair, should the committee desire to submit a proposal.

Dr. Zinsmeister then turned to the primary focus of her meeting with us: to ask one question on behalf of Kathleen Burke. Since calculus occurs in the Core Curriculum, can ACMS develop common course descriptions and common course numbers for the calculus?

A lengthy and wide ranging discussion followed. During this discussion, Dr. Zinsmeister emphasized that the Board of Regents believes that transferability issues would best be served by having common descriptions and numbers for courses that serve the same role in the curriculum. Arthur Sparks, who was chair of ACMS during 1996-97, pointed out that in November 1996 ACMS made several recommendations relative to commonality in the calculus, but these recommendations were not reflected in subsequent information distributed by the Regents. Various members indicated that, when our recommendations on Mathematical Modeling, College Algebra, and Precalculus were accepted and distributed as policy from the Board of Regents but there seemed to be no response on the calculus recommendations, most institutions proceeded to develop numbers and descriptions to meet local institutional needs. For the record, the calculus- related recommendations approved at the meeting of ACMS on November 23, 1996, were noted as follows.

(1) The first digit of the course number for Pre-calculus and Calculus I should be 1; the first digit of the course number for Calculus II should be 2 or 1 depending upon institutional mission: and the first digit of the course number for Calculus III should be 2.

(2) The ACMS recommends the following description for Calculus I: Calculus I Topics to include functions, limits, continuity, the derivative, antidifferentiation, the definite integral, and applications.

(3) The ACMS supports the use of a common course number for Calculus I throughout the University System of Georgia.

Further discussion indicated that adopting a common Calculus I number is very complex now that we have gone forward with a first year of semester conversion catalogs containing almost as many different numbers as there are institutions in the system. It was also noted repeatedly that, due to its mission, Georgia Tech's distribution of topics in the calculus sequence is very different from the distribution of topics at other system institutions. Several members observed that we have been transferring students among calculus sequences for many, many

years within the system without common numbers. It was noted that the Curriculum and Transfer of Credit Subcommittee plans to develop a matrix of topics covered in each semester of calculus at each institution for the purpose of advising and assisting transfer students. Dr. Zinsmeister closed the session and the discussion by urging us to have some conversations, to reconsider acting on our former recommendations, and to move as far as possible in the direction of common numbers and descriptions, possibly making an exception for Georgia Tech. She also urged that we try to act before the end of the calendar year due to deadlines for printing catalogs for FY 2000

### **Business Meeting - New Business**

John Robertson announced that anyone who had a change of email address or who needed to be added to the list serve for ACMS should contact him directly.

Richard Gibson reminded everyone of the workshop scheduled for Columbus State University on May 15-16. The Workshop will focus on one approach to Mathematical Modeling course. Richard offered announcements and registration information to all who were interested.

Due to the fact that the meeting with Dr. Zinsmeister had gone somewhat overtime and due to the complexity of the calculus issue, the ACMS decided not to have further discussion of possible action until there had been time for reflection. Several members noted that having different numbers for the calculus at institutions with different missions and levels of students allows transfer students to receive transfer credit for the work that has been done and to take needed additional coursework without loss of credits. In some circumstances, common numbers would force a student to take a course numbered the same as one already taken but actually containing new material. Thus the student would lose credit for the first attempt at the course although the "second" attempt would actually be a new course for the student.

Kevin Clancey moved that ACMS thank Ashok Kumar for his service as chair for 1997-98 and all agreed.

Dr. Kumar then adjourned the meeting.

**Respectfully submitted,  
Catherine Aust, Chair-elect for 1997-98**

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