Adopted: May 27, 1986

ACADEMIC SENATE
OF
CALIFORNIA POLYTECHNIC STATE UNIVERSITY
San Luis Obispo, California

AS-212-86/GE&B

GENERAL EDUCATION AND BREADTH COURSE PROPOSALS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Area</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td>HUM 302</td>
<td>Human Values in Agriculture</td>
<td>C.3.</td>
<td>Approved</td>
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<tr>
<td>MATH 201</td>
<td>Appreciation of Mathematics</td>
<td>B.2.</td>
<td>Approved</td>
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Proposed By:
General Education and Breadth Committee
April 15, 1986
<table>
<thead>
<tr>
<th>1. PROPOSER'S NAME</th>
<th>2. PROPOSER'S DEPT.</th>
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<tbody>
<tr>
<td>Art Department</td>
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<thead>
<tr>
<th>3. SUBMITTED FOR AREA (include section, and subsection if applicable)</th>
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<tbody>
<tr>
<td>C.3.</td>
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<tr>
<th>4. COURSE PREFIX, NUMBER, TITLE, UNITS, DESCRIPTION, ETC. (use catalog format)</th>
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<tbody>
<tr>
<td>Art 208 Sculpture (3)</td>
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<tr>
<td>Exploration of three-dimensional form through problems in modeling, casting, carving and techniques of assembly. Miscellaneous course fee required. 1 lecture, 2 laboratories.</td>
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<tr>
<th>5. SUBCOMMITTEE RECOMMENDATION AND REMARKS and</th>
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<tr>
<td>6. GE &amp; B COMMITTEE RECOMMENDATION AND REMARKS:</td>
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This course was referred back to committee for possible inclusion in Area C.3., after having been considered and rejected for Area C.2. The Area C Subcommittee reaffirmed its support for including Art 208 in Area C.3. Nevertheless, the GE&B Committee rejected this proposal by a vote of 4-5-0. The members opposing such inclusion felt that Area C would not be strengthened by the inclusion of skills, studio, or performance courses.

<table>
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<tr>
<th>7. ACADEMIC SENATE RECOMMENDATION</th>
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**GENERAL EDUCATION AND BREADTH PROPOSAL**

<table>
<thead>
<tr>
<th>1. PROPOSER'S NAME</th>
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<tr>
<td>Stan Dundon</td>
<td>Philosophy</td>
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<tr>
<th>3. SUBMITTED FOR AREA (include section, and subsection if applicable)</th>
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<tr>
<td>C.3. (and F.2. by Chair of GE&amp;B)</td>
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<th>4. COURSE PREFIX, NUMBER, TITLE, UNITS, DESCRIPTION, ETC. (use catalog format)</th>
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<td>HUM 302-Human Values in Agriculture (3). 3 lectures.</td>
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Nature of values at issue in agriculture which impact on the wider community. Technical-factual foundation of needs of agriculture which contribute to value conflicts, ethical principles and devices yielding resolutions. Interdisciplinary team taught, with guest lecturers and possible field trips. Literary and historical materials dramatically expressing values.

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<th>5. SUBCOMMITTEE RECOMMENDATION AND REMARKS</th>
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<tbody>
<tr>
<td>Area C  Against  1-3-0  (Chair not voting)</td>
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<tr>
<td>Area F  Against</td>
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<th>6. GE &amp; B COMMITTEE RECOMMENDATION AND REMARKS</th>
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</thead>
<tbody>
<tr>
<td>Area C.3.  Approves contingent upon course not being cross-listed with an AG prefix. 8-1-0</td>
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<tr>
<td>Area F.2.  Against  1-8-0</td>
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See attached remarks by Chair.

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REMARKS

Rarely is there as much divergence between the recommendation of an area subcommittee and that of the GE&B Committee as has occurred in the proposal to include HUM 302 in Area C.3.

When originally proposed for C.3., the Chair of GE&B also referred the course to the Area F Subcommittee for possible inclusion in F.2. The Area F Subcommittee recommended against its inclusion in F.2. on the basis that its orientation was toward social and humanistic aspects of technology rather than to applications of technology to, practical problems in, and practical skills required by (in this case) agriculture.

Likewise, the Area C Subcommittee recommended against its inclusion in C.3. primarily because the course content was not suitable for that area. In doing so, the Area C Subcommittee expressed concern that too often courses of an interdisciplinary nature that are proposed for GE&B, are routinely proposed for Area C.

The General Education and Breadth Committee in its deliberations expressed the view that an interdisciplinary course dealing with such a timely topic as HUM 302 does, should be included in the General Education program at Cal Poly, and that being a course in applied ethics, it was indeed appropriate for Area C.3.

While the Chair respects the views of both subcommittees and that of the GE&B Committee as well, he is troubled by the apparent disregard for HUM 302 in relation to the General Education & Breadth Knowledge and Skills Statement 7.A., 7.B., 9.A., and 9.B. These items would seem to apply directly to HUM 302, and have been attached for your perusal.
CAL POLY GRADUATES, BY VIRTUE OF THEIR EDUCATION AT A POLYTECHNIC UNIVERSITY, SHOULD UNDERSTAND HOW TECHNOLOGY INFLUENCES AND IS INFLUENCED BY CULTURAL AND ENVIRONMENTAL FACTORS, THE APPLICATIONS OF TECHNOLOGY TO CONTEMPORARY PROBLEMS, AND THE POTENTIAL OF TECHNOLOGY TO BOTH POSITIVELY AND NEGATIVELY AFFECT INDIVIDUALS AND SOCIETIES.

Outcome number 7 can be achieved by including the following:

A. Students should gain an awareness of their increasing dependence on technology, and how it is guided, managed, and controlled.

B. Students should be able to evaluate and assess questions of value and choice underlying technologies and how, in the course of their development, these questions have been addressed and answered.

C. Students should gain a basic level of computer skill and literacy.

CAL POLY GRADUATES, BECAUSE THEY WILL BE LIVING IN A TECHNOLOGICAL WORLD, SHOULD BE EXPOSED TO COURSES TAUGHT WITHIN THE TECHNOLOGICAL AREAS, SO THAT THEY WILL HAVE A BASIS FOR DEVELOPING A BETTER UNDERSTANDING OF HOW TECHNOLOGY INFLUENCES AND IS INFLUENCED BY PRESENT DAY CULTURES AND OTHER ENVIRONMENTAL FACTORS.

Outcome number 9 is addressed by courses which emphasize the following:

A. Students should develop an awareness of typical problems addressed by technology, such as methods of world food production, applications of the computer, or the production, distribution, and control of energy.

B. Students should have an opportunity to learn the difficulties inherent in solving technological problems. The emphasis should be on the application of theoretical knowledge to practical matters such as:

(1) The consequences and implications of applied technology for environmental factors of climate, water quality, soil, and plant resources.

(2) Problems stemming from the interactions of population growth, technology and resource consumption, such as climate change, the energy crisis, world hunger and soil erosion.

(3) Contributions of technology in enhancing the availability of food and shelter, harnessing energy, and improving the quality of life.

C. Students should develop an awareness of issues raised by the interaction of culture and technology.
1. **PROPOSER'S NAME**  
Mathematics Department

2. **PROPOSER'S DEPT.**  

3. **SUBMITTED FOR AREA (include section, and subsection if applicable)**  
B.2.

4. **COURSE PREFIX, NUMBER, TITLE, UNITS, DESCRIPTION, ETC. (use catalog format)**  
**Math 201 - Appreciation of Mathematics (3)**  
Contemporary mathematics and the relationship between mathematics and our cultural heritage. Intended to develop an appreciation for the role that mathematics plays in society, both past and present. 3 lectures.

5. **SUBCOMMITTEE RECOMMENDATION AND REMARKS**  
Approves (unanimous).

6. **GE & B COMMITTEE RECOMMENDATION AND REMARKS**  
Approves 5-4-0. See attachment.  
Those members opposing felt that the integrity of the mathematics requirement would be better sustained by a traditional algebra course.  
Note that Math 113 is a prerequisite in the '86-'88 catalog.

7. **ACADEMIC SENATE RECOMMENDATION**
Memorandum

To: George Lewis
Via: Lloyd Lamouria

From: Paul Murphy O. F. M.

Date: October 1, 1985

Subject: Math 201

The Mathematics Department would like to have the course Math 201, Appreciation of Mathematics, added to the list of allowable G.E.B. electives, in area B.

I am enclosing an expanded course outline of the course. I am also having letters sent to you from department heads in other departments, expressing the opinion that this course would be valuable to their majors.

Math 201 has been carefully designed to replace our former Math 100, Mathematics for General Education. For many years we offered Math 100 as an elective for students who did not need any particular mathematical skills for courses in their major or in their support courses. The course had no prerequisites, and the course outline gave the instructor a great deal of freedom. In 1982, the G.E.B. Committee decided not to include Math 100 in its list of allowable electives.

In the last several years, the entrance requirements for admission to Cal Poly have been substantially toughened, in mathematics as well as other subjects. This development has allowed our Curriculum Committee to design a new course which can meet the needs of students in the same majors as did Math 100, but which is considerably more rigorous and challenging.

In particular, Math 201 has a prerequisite of Math 113 or two years of high-school algebra. And since students are required to pass the ELM exam before they take any mathematics class at Cal Poly, instructors of Math 201 can be certain that their students will have basic algebra skills. With this in mind, we have chosen a text for Math 201 which is probably the most advanced of the texts which were used for Math 100. (Math 100 allowed the instructor to choose the text, and there were sometimes as many as four or five in use in a given academic year.) More important, this text, *Facies of Mathematics* by Roberts and Varberg, fits the goals expressed in Executive Order 338 and Cal Poly's "Knowledge and Skills Statement" extremely well. That is, the course and the text are designed to teach students "not ... merely basic computational skills, but ... as well the understanding of basic mathematical concepts" (E.O. 338, section IV B). Most instructors who used this text for Math 100 were very pleased with this aspect of the text; if they had any complaint, it was that the text was a bit too hard for many Math 100 students.

Thank you for your consideration of this matter. Please do not hesitate to contact me if you need additional information or supporting materials.
To: Lloyd Lamouria, Chair
   Academic Senate

From: Warren J. Baker
   President

Subject: Academic Senate Resolutions

The following are my comments on recent Academic Senate resolutions:

General Education and Breadth Requirements (AS-188-85):

Formal response to this resolution was apparently overlooked. The courses
have been included in the 1986-88 catalog and can be considered approved.
I do have some reservations about those courses in Area F as noted in my
comments below.

General Education and Breadth (AS-189-86/GE&B):

This resolution is approved with the exception of the two courses falling
into Area F: NRM 101 and NRM 201. My comments regarding these and other
courses in Area F can be found in the next section.

General Education and Breadth Course Proposals (AS-211-86/GE&B)

I concur with the non-approval of HE 203.

I do not agree with the Senate's approval of additional courses for Area
F, either those in this resolution or in AS-188-85 and AS-189-86/GE&B as
noted above.

My objection rests on the Knowledge and Skills Statements that were
adopted by referendum of the faculty during the process of developing and
implementing the new GE&B program. There continues to be some confusion
between sections 7 and 9, both of which bear on the intent of courses
admitted to Area F.

Section 7 requires that Cal Poly students in particular should "understand
how technology influences and is influenced by cultural and environmental
factors, the applications of technology to contemporary problems, and the
potential of technology to both positively and negatively affect
individuals and societies." It goes on to indicate that this can be
achieved by including experiences in which students "gain an awareness of
their increasing dependence on technology and how it is guided, managed,
and controlled."
In addition, students "should be able to evaluate and assess questions of value and choice underlying technologies and how, in the course of their development, these questions have been addressed and answered."

Section 9 requires that Cal Poly graduates "be exposed to courses taught within the technological areas, so that they will have a basis for developing a better understanding of how technology influences and is influenced by present day cultures and other environmental factors."

Students should "develop an awareness of typical problems addressed by technology, such as methods of world food production, applications of the computer, or the production, distribution, and control of energy."

They should also "have an opportunity to learn the difficulties inherent in solving technological problems," especially in "the application of theoretical knowledge to practical matters such as:

(1) The consequences and implications of applied technology for environmental factors of climate, water quality, soil, and plant resources.

(2) Problems stemming from the interactions of population growth, technology and resource consumption, such as climate change, the energy crisis, world hunger and soil erosion."

Students are further expected to "develop an awareness of issues raised by the interaction of culture and technology."

These statements raise two immediate issues: What do we mean by "courses taught within the technological areas"? And what is Area F attempting to accomplish in the education of our undergraduates?

Up to this time, we have limited courses in Area F to those taught by the Schools of Agriculture, Architecture, and Engineering. This may be an artificial limitation; certainly there are faculty and departments in other schools of the university capable and interested in offering courses for Area F. The current Senate resolutions propose some courses for Area F to be offered by departments outside these three schools, and before a decision is made regarding their approval, I would like the statement "taught within the technological areas" clarified for the entire campus.

As I read Section 7 and Section 9, and as I consider my own thinking about General Education, I believe Area F should concern itself with providing the student an opportunity to consider the benefits of technology, and at the same time to reach some understanding of the "consequences and implications" of technology, both practical and ethical.

When I review the courses currently in Area F, I find only two courses of the approximately 33 listed which, at least on paper, appear to be consistent with the statements noted above: ENGR 301 and AG 301. To add more courses to Area F would only aggravate the situation and further dilute this area of General Education and Breadth.
As a result of these and other considerations, I am withholding approval of any courses for AREA F and requesting the Academic Senate to clarify the issues centering around Area F. This will need to be accomplished in time for the next curricular cycle so that necessary changes can be incorporated in the 1988-90 catalog.

General Education and Breadth Course Proposals (AS-212-86/GE&B):

Both recommendations are acceptable: The "Human Values in Agriculture" course is approved for Area C.3. and Math 201 is approved for Area B.2. However, I request a change in title for MATH 201. I would prefer the elimination of "Appreciation" and substitution of something more appropriate to the content and intent of the course. This course and all other math courses will have to be in compliance with the CSU policy on Baccalaureate Credit for Intermediate Algebra as outlined in GE&B Notes #8 (May 12, 1986) and in EP&R 86-32 (June 5, 1986).