Academic Senate
805.756.1258
http://academicsenate.calpoly.edu/

Meeting of the Academic Senate Executive Committee
Tuesday, April 23 2013
01-409, 3:10 to 5:00pm

I. Minutes: Approval of Executive Committee meeting minutes for April 2 2013 (pp. 2-3).

II. Communication(s) and Announcement(s):

III. Reports:
   A. Academic Senate Chair:
   B. President’s Office:
   C. Provost:
   D. Statewide Senate:
   E. CFA:
   F. ASI:

IV. Business Item(s):
   A. Appointment to the task force to evaluate potential software vendors for online course
evaluations (list of names will be distributed at the meeting).
   B. Resolution on Proposed New Degree Program for Master of Science in Printed Electronics and
   Functional Imaging: Schaffner, chair of the Curriculum Committee (pp. 4-8).
   C. Resolution to Change Administrative Status for Wine and Viticulture Program Cooper, Director
   for Wine and Viticulture Program (pp. 9-20).
   D. Resolution on Final Examination Overload Conflicts: Stegner, chair of the Instruction Committee
   (p. 21).
   E. Resolution on Revisions to Fairness Board Description and Procedures: Shapiro, chair of the
   Fairness Board (pp. 22-29).
   F. Resolution on Name Change for the Management Area of the Orfalea College of Business:
   Borin, OCOB caucus chair (p. 30).
   G. Resolution on Program and Area Name Change for the Industrial Technology Program and
   Area of the Orfalea College of Business: Borin, OCOB caucus chair (p. 31).
   H. Appointment of Clare Battista (replacement for Ty Mackey) and David Sikora (replacement for
   Tad Miller) to the Academic Senate OCOB caucus for spring quarter 2013.
   I. Appointments to Academic Senate college caucus vacancies for 2014-2015: (pp. 32-33). Please
   bring additional names to meeting).
   J. Appointment of member to the Cal Poly corporation Board of Directors: (p. 34).
   K. Appointment of CAED nominee to Faculty Affairs Committee for spring quarter 2013: (p. 35).
   L. Appointment of nominees to university committees for 2013-2015: (pp. 36-39).
   M. Appointment of nominee to Academic Senate committee for 2013-2015: (pp. 40-49).

V. Discussion Item(s):

VI. Adjournment:
I. Minutes: The minutes of February 19 were approved as presented.

II. Communication(s) and Announcement(s): none.

III. Reports:
A. Academic Senate Chair: Rein reported that the issue of online courses and how Cal Poly should position itself continues to be a challenge since studies are not conclusive and all seem to have deficiencies. On the Governor’s proposed budget, $10 million has been targeted to developing online-related material for courses that cause bottlenecks. Sacramento would like to increase the efficiency of students transferring from junior college to the CSU and is discussing the idea of common core courses or a common numbering system. The Chair discussed resolutions related to department merger and reorganization that have not been formally approved by the President.

B. President’s Office: Kinsley reported that Chancellor White will visit Cal Poly on May 1 and 2. An open forum will be held on May 2. In addition, three listening sessions with President Armstrong and other key campus leaders have been scheduled for April.

C. Provost: none.

D. Statewide Senate: Foroohar reported that the main issue discussed at Statewide Academic Senate meetings is the online program. The CSU wants to create an online program that is based on quality and student success. In addition, the amendment to academic freedom to the constitution will go to the Board of Trustees in May for a final vote. LoCascio reported that State University Grants (SUGs) were discussed and the process is still not clear except that the CSU does not collect the $630 million that it calls SUGs. The cost of SUGs is spread out over all the campuses.

E. CFA Campus President: Thorncroft reported that CFA is working on the Governor’s budget for the May revise.

F. ASI Representative: none.

IV. Consent Agenda: none.
V. Business Item(s):

A. **Resolution on Proposal for the Establishment of the Cal Poly Cybersecurity Center**
   (Bik/Larson/Vakalis): Vakalis presented the resolution, which requests that the Academic Senate endorse the proposal for the establishment of the Cybersecurity Center. M/S/P to agendize the resolution.

B. **Resolution on Conflict of Interest in the Assignment of Course Materials**
   (Instruction Committee): Stegner presented the resolution, which requests that the Campus Administrative Policies address the possible conflict of interest in the assignment of self-authored course material and that faculty members do not personally profit from the sale of self-authored course materials to Cal Poly students. M/S/P to agendize the resolution.

C. **Approval of Academic Senate Calendar of Meetings for 2013-2014**: M/S/P to approve the 2013-2014 Academic Senate calendar of meeting as presented.

D. **Appointment to Academic Senate vacancies for 2014-2015**: Due to lack of time this item was not addressed and will return at the next Executive Committee meeting.

E. **Appointment of nominees to Academic Senate committees for 2013-2015**: Due to lack of time this item was not addressed and will return at the next Executive Committee meeting.

F. **Appointment of nominees to university committee for 2013-2015**: Due to lack of time this item was not addressed and will return at the next Executive Committee meeting.

G. **Appointment of Academic Senate Committee Chair to Graduate Programs Subcommittee, spring quarter 2013**: M/S/P to approve Cornelius Nuworsoo as chair of the Graduate Programs Subcommittee for spring quarter 2013.

VI. Discussion Item(s): none.

VII. Adjournment: 5:00 pm

Submitted by,

[Signature]

Gladys Gregory
Academic Senate
RESOLUTION ON PROPOSED NEW DEGREE PROGRAM FOR MASTER OF SCIENCE IN PRINTED ELECTRONICS AND FUNCTIONAL IMAGING

WHEREAS, There is an emerging field in functional printing comprising printed electronics, security printing, active packaging, and additive manufacturing, projected to grow substantially in the next several decades; and

WHEREAS, Functional printing uses conventional and emerging printing techniques, many of which are already in place in the Graphic Communication Department, to produce new electronic devices, security features, and functional packaging; and

WHEREAS, The graphic communication industry stands ready to support the Master’s degree program with advanced laboratory technology to further Cal Poly’s Learn by Doing pedagogy; and

WHEREAS, The Graphic Communication Department has taught undergraduate coursework in printing and imaging for more than sixty years and can leverage that expertise in graduate education; and

WHEREAS, Cal Poly’s Graphic Communication Department is considered one of the leading institutions in the country for undergraduate education in graphic communication; and

WHEREAS, The Graphic Communication Department is proposing a Master of Science degree in Printed Electronics and Functional Imaging, comprised of online and face-to-face coursework culminating in scholarly research projects; and

WHEREAS, The College of Liberal Arts Curriculum Committee and the Academic Senate Curriculum Committee have carefully evaluated this proposal and recommend its approval; therefore be it

RESOLVED: That the Academic Senate of Cal Poly approve the proposal for the Master of Science in Printed Electronics and Functional Imaging and that the proposal be sent to the Chancellor’s Office for final approval.

Proposed by: Academic Senate Curriculum Committee
Date: April 9 2013
Summary Statement of Proposed New Degree Program in Printed Electronics & Functional Imaging for CSU Academic Master Plan Projection

1. **Title of proposed program:**
   Master of Science in Printed Electronics and Functional Imaging

2. **Reason for proposing the program:**
   Functional Printing encompasses academic coursework related to several emerging graphic communication applications: *Printed Electronics*, which Das and Harrop (2011) project to grow from a $2.2 billion today into a $44.25 billion industry over the next decade; *Active and Intelligent Packaging*, projected by Research and Markets (2011) to grow to $23 billion per year over the next decade; and *Security Printing*. The European research institute PIRA predicts the global market for brand protection to reach a value of more than $11.4 billion by 2014 (Mc Loone, 2010). Further, other additive manufacturing areas, including 3D printing, are gaining in popularity.

   These fields involve the application of specialty inks to produce functional and optical devices, including a number of new high-tech printing applications. Active packaging focuses on printed packaging that improves shelf life or enhances supply-chain tracking. Anti-counterfeiting is critical for brand protection. Using both conductive and insulating inks, printed electronics and functional imaging offer low-cost production of displays, lighting and energy harvesting devices on flexible substrates.

   The Master of Science in Printed Electronics and Functional Imaging will prepare graduates for conceptual and practical electronic or functional applications, advanced research, and the development of intellectual property related to the use of printing and coating technologies in these emerging fields. This Master of Science degree integrates well with the undergraduate Graphic Communication degree offered at Cal Poly, which largely focuses on graphic printing and imaging technologies. The Master of Science degree engages students in critical thinking and conducting seminal research using the department’s significant capital assets. The degree will further enhance the department’s relationship with industry, allowing students to engage immediately with leading industry professionals. This program will leverage the strengths of the undergraduate program while developing increased research opportunities in the department.

   This degree is offered as a self-support program under CSU Executive Order No. 1047.

3. **Expected student learning outcomes and methods for assessing outcomes:**

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<th>SLO</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>Analyze the theoretical foundations underpinning conductive materials, optical patterning, basic electronic components and circuits, and material behavior.</td>
<td>Graduate faculty will assess theoretical foundations through projects produced in GrC 530 as well as the literature reviews associated with GrC 596 using custom evaluation rubric.</td>
</tr>
<tr>
<td>Integrate graphic design, functional design, and creative applications into expressive technologies (technologies that enhance human interaction) through compelling products.</td>
<td>Graduate faculty will assess graphic and functional integration through projects produced in GrC 530 and research projects in GrC 596 using custom evaluation rubric.</td>
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<tr>
<td>Effectively present and defend scholarly research methodologies, findings, and implications in written form.</td>
<td>Graduate faculty will assess writing skills as demonstrated through the students written summative research project paper using custom evaluation rubric.</td>
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Evaluate and determine the suitability for printing as a production method for specific functional and novel products.

Graduate faculty will assess evaluation ability for suitability of printing through a summative paper in GrC 530 using custom evaluation rubric.

Develop specifications and tolerances for deposition technologies for various functional products.

Graduate faculty will assess specifications and tolerance development through summative paper in GrC 530 using custom evaluation rubric.

Demonstrate knowledge related to microscale patterning and deposition including accurately measuring patterning and deposition characteristics using a variety of instruments.

Graduate faculty will assess microscale patterning and deposition through practical evaluation in GrC 530 using custom evaluation rubric.

Analyze multiple equipment technologies against required specifications and tolerances and determine appropriateness or equipment modifications required.

Graduate faculty will assess equipment technology analysis through summative paper in GrC 530 using custom evaluation rubric.

Evaluate fundamental business concepts related to starting and managing an entrepreneurial operation.

Graduate faculty will assess fundamental business concepts via a business plan developed in GrC 520 using custom evaluation rubric.

Effectively present and defend scholarly research methodologies, findings, and implications orally.

Graduate faculty will assess oral communication of scholarly research during presentation in GrC 596 using custom evaluation rubric.

4. **Anticipated student demand:**

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<tr>
<th>Number of Students</th>
<th>at initiation</th>
<th>3 years after initiation</th>
<th>5 years after initiation</th>
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<tbody>
<tr>
<td>Number of Majors</td>
<td>10-15</td>
<td>20-30</td>
<td>30-45</td>
</tr>
<tr>
<td>Number of Graduates (cumulative)</td>
<td>0</td>
<td>20</td>
<td>50</td>
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</tbody>
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A comprehensive online survey was conducted by contacting professors from around the world who may have undergraduate students interested in this type of degree program. Additionally, GrC alumni were contacted using a variety of email lists and alumni groups. Here are some key results:

- 375 individuals completed all or most of the survey
- Of those who participated, 275 where current undergraduates and 83 had completed their bachelor’s degree.
- 235 survey respondents were likely, very likely, or planning on pursuing a graduate degree in the next five years.
- 167 survey respondents expressed interest in Cal Poly’s proposed graduate program in Printed Electronics and Functional Imaging.
- Of those, 118 individuals provided contact information and requested more information about the proposed degree program.

5. **If additional resources (faculty student allocations, support staff, facilitates, equipment, etc.) will be required, please identify the resources, indicate the extent of the college’s commitment**
to allocate them, and evidence that college decision-making committees were aware of the source of resource support when they endorsed the proposal. If the college expects the University to provide additional resources, please identify the resources and anticipated cost:

On startup, the degree program will use existing Graphic Communication Department laboratories, equipment, and staffing. Existing faculty will teach on an overload basis through Extended Education. As a self-support program, success may afford opportunity to add faculty to the GrC staff in the future. As additional resources become available through strong enrollments, faculty and equipment may be acquired. Additionally, the Graphic Communication Department has a strong record of development by in-kind donations, grant funding, and endowments, which will be used to strengthen the financial undergirding.

6. If the program is occupational or professional, summarize evidence of need for graduates with this specific educational background:

At the Printed Electronics USA 2011 conference November 30-December 1 in Santa Clara, CA, seventeen employers were asked the following questions:

1. Within the next five years, do you expect to hire employees in your company who help you develop, improve, or scale your production system(s)?

   All survey respondents indicated they will be hiring in the next five years.

   2. If yes, could you see hiring an individual with a Master’s of Science degree who...
      • Generally understands deposition and patterning systems for printed electronics, smart packaging, and security printing.
      • Can measure, analyze, and optimize key variables in printing technologies
      • Can measure, analyze, and optimize web handling systems
      • Can measure, analyze, and optimize material/ink compositions
      • Can measure, analyze, and optimize morphologies (ink film surfaces)
      • Can measure, analyze, and optimize drying/annealing systems
      • And knows the issues related to scaling reproduction systems for commercial applications?

   Sixteen of seventeen (94%) indicated they could see hiring an individual with this particular background in the next five years.

   There were more than 1200 attendees at the Printed Electronics USA 2011, an increase of 250 attendees from the previous year. Cal Poly’s proximity to the Silicon Valley is critical, as many of the companies in this space stem from conventional electronics and are looking for the opportunity to develop new products and improve manufacturing techniques.

7. If the new program is currently a concentration or specialization, include a brief rationale for conversion:

Printed Electronics and Functional Imaging is not currently a concentration or specialization.

8. If the new program is not commonly offered as a bachelor’s or master’s degree, provide compelling rationale explaining how the proposed subject area constitutes a coherent, integrated degree major which has potential value for students. If the new program does not appear to conform to the CSU trustee policy calling for “broadly based programs,” provide rationale:

The program is a natural extension of the Graphic Communication undergraduate degree. However, it has broad appeal to students with complimentary undergraduate degrees as well, including but not limited to: Business, Graphic Design, Physics, Chemistry, Packaging, Electrical Engineering, Materials Engineering, and Mechanical Engineering. This degree will provide a coherent path into a
specialized application area for broader undergraduate degrees. While this degree may not
technically qualify as a “broadly based program,” it is designed to touch on various applications of
functional printing, including printed electronics, active packaging, security printing, 3D printing,
and other functional print manufacturing. These emerging applications have broad interest and will
shape society into the future.

9. Briefly describe how the new program fits with the mission and/or strategic plan for the
department, college and/or university:
This degree program fits well with the Graphic Communication mission by focusing on research
and discovery. The degree program leverages the equipment base along with research interests of
faculty to extend the scholarship of the department and further its influence in shaping graphic
communication technology. The College of Liberal Arts offers diverse, significant curricula. This
program strengthens the college’s unique role in anticipating the future and defining it in light of
human experience. With a focus on deployment, this degree addresses the human experience and
how laboratory research can be scaled to impact the broader population. This Master’s of Science
degree is focused on technology development and deployment in the context of advanced printed
materials. It serves to directly meet the STEM objectives of the university as well as the college and
department.

10. Attach a display of curriculum requirements:

COURSEWORK (45 Units)
Core Courses (29 units)
GrC 501 - Survey of Functional Printing ................................................. 2.0
GrC 502 - Orientation to Functional Printing (Prereq or co-req GrC 501) .......... 2.0
GrC 510 - Materials for Functional Printing (Prereq or co-req GrC 501) .......... 4.0
GrC 512 - Printing and Coating Tech (Prereq or co-req GrC 501) ................. 4.0
GrC 514 - Imaging for Electronics & Functional Printing (Prereq or co-req GrC 501) ...... 4.0
GrC 520 - Functional Printing Product and Business Development (Prereq GrC 512 OR GrC 514) ..... 4.0
GrC 530 - Functional Printing Workflows (Prereq GrC 502 AND GrC 512 AND GrC 514) ..... 4.0
GrC 560 - Grad Research Methods in Printed Electronics & Functional Imaging (Prereq GrC 530) .... 2.0
GrC 596 - Research Project in Printed Electronics and Functional Imaging (Prereq GrC 560) .......... 3.0

Subtotal (core) ............................................................................. 29.0

Approved Electives (16 units)
Select 16 units from the following:
GrC 500 - Special Problems in GrC (Prereq Graduate standing and consent of instructor) .......... 2.0
GrC 551 - Current Trends in Printed Electronics (May be repeated for up to 12 units, Prereq GrC 502) .... 4.0
GrC 552 - Current Trends in Active Packaging (May be repeated for up to 12 units, Prereq GrC 502) .... 4.0
GrC 553 - Current Trends in Security & Anti-counterfeiting (May be repeated for up to 12 units, Prereq GrC 502) .... 4.0
GrC 595 - Cooperative Experience Education (Prereq Graduate standing and consent of instructor) ... 12.0
Other courses as approved by academic advisor .................................. 8.0

Subtotal ( electives - select 16 units) ........................................ 16.0

TOTAL ...................................................................................... 45.0
RESOLUTION TO CHANGE ADMINISTRATIVE STATUS FOR WINE AND VITICULTURE PROGRAM

WHEREAS, The Wine and Viticulture is currently an interdepartmental major within the College of Agriculture, Food and Environmental Sciences, and

WHEREAS, The mission, curricula, goals, and strategic vision for wine and viticulture are distinct from those of the Agribusiness, Food Science and Nutrition, and Horticulture and Crop Science Departments, and

WHEREAS, The program is operating autonomously from the Agribusiness, Food Science and Nutrition, and Horticulture and Crop Science Departments, and

WHEREAS, A change in status and name from Wine and Viticulture program to "Wine and Viticulture Department" is being proposed, and

WHEREAS, The functional modifications in changing to department status are provided in the attachment to this resolution, and

WHEREAS, Said change in status and name has been approved by the College of Agriculture, Food and Environmental Sciences department heads, the CAFES Dean, and the Academic Deans Council, therefore be it

RESOLVED: That the Academic Senate of Cal Poly endorse the change in status and name from Wine and Viticulture program to Wine and Viticulture Department.
Overview
The Cal Poly Wine and Viticulture Program is an integrative three-pronged program aimed at educating future leaders of the global grape and wine industry. The Program arose from a collaboration among three departments in CAFES: Agribusiness, Food Science and Nutrition, and Horticulture and Crop Science. It currently offers an interdisciplinary major in Wine and Viticulture designed to prepare students for successful careers in the complex 21st century global wine business environment. Program curriculum emphasizes the inherent connectivity between wine grape growing in the vineyard, wine making in the winery, and wine selling in the marketplaces, uniquely integrating these three fundamental components of the modern wine industry. The Wine and Viticulture faculty believe that an understanding of all three aspects is critical in the unique legal and regulatory environment in which the wine industry operates.

Compared to other academic wine programs around the country, an emphasis on all three aspects of the wine industry provides a unique advantage that distinguishes the Cal Poly program. All Wine and Viticulture majors learn the foundations of viticulture through lectures and labs that use the campus 15-acre Trestle Vineyard. Students learn winemaking through lecture and lab courses using the campus pilot winery and teaching labs in FSN and Biology. Students also learn some essentials of marketing and sales, with the potential to develop and manage the Cal Poly Wine brand. The Program incorporates Learn by Doing throughout its curriculum. All students are required to complete (at least) one internship in the grape and/or wine industry and a senior “capstone” project, and are encouraged to participate in undergraduate research. The Vines to Wines student club provides networking opportunities with industry professionals through volunteering for many local wine industry events.
BACKGROUND

History of Wine and Viticulture at Cal Poly

Courses in viticulture, sensory analysis, and wine business have been offered at Cal Poly since the 1980’s through the Agribusiness, Food Science and Nutrition, and Crop Science Departments, and through Extended Education. A wine certificate program was developed through Extended Education in the 1990’s, and continues today. (Until recently, this wine certificate program has had minimal coordination with the Wine and Viticulture Program in CAFES, though great potential exists for a more formal and extensive collaboration with Extended Education). Also during the 1990’s, Fruit Science viticulture courses, Food Science courses in sensory evaluation and fermentation, and Agribusiness courses in wine business were all heavily enrolled. Experiences in wine and viticulture through these individual courses generated a high level of student passion for wine and the wine industry, and led to the foundation of a student club, Vines to Wines, in 1996. Over the years, the V2W club has attracted scores of students to its biweekly club meetings, providing student networking opportunities with industry professionals, and student volunteers to staff many local wine events. of the Agribusiness Department, provided research supporting the establishment of a distinctive Wine and Viticulture Minor at Cal Poly. In 1999, a Wine and Viticulture minor commenced with a curriculum based on a 1988 senior project by Johnine Przybyla Talley, with Professor Phil Doub. The minor included courses from Food Science and Nutrition (taught by Montecalvo, Noyes, and Lecturers), Horticulture and Crop Science (taught by Fountain, Patterson, Costello, and Lecturers), and Agribusiness (taught by Doub, Amspacher, Wolf, and others). Enrollment in the minor grew rapidly and graduates with the minor found ample employment opportunities in the industry. Many of these Cal Poly graduates have moving rapidly into leadership positions throughout the California wine industry. In 2004 an academic major in Wine and Viticulture was approved and the Wine and Viticulture Program, headed by a Program Director, was formally founded. In 2007, Professor Ritchie was hired into the Food Science department to develop the enology and winemaking curriculum. Doub, Fountain, Montecalvo, Noyes, and Patterson all retired.

Wine and Viticulture Student and Industry Demand

When the Wine and Viticulture Major was initiated in 2004, the Minor had 222 enrolled students (Figure 1). The major rapidly grew to a high of 280 in 2008, including students with double majors from other departments in the College of Agriculture, Food and Environmental Sciences. In 2007 the Wine and Viticulture Program was serving 417 majors and minors (Figure 2). Due in part to the retirement of several key faculty members, most of the required courses became heavily impacted. To effectively serve the majors, the Program
stopped accepting applications for the minor in 2011 and stabilized the number of majors to about 250. In 2012 166 students applied to become Wine and Viticulture majors as freshman, and 84 were accepted with 53 enrolled. In 2012, 67 transfer students applied to Wine and Viticulture, 31 were accepted and 21 enrolled. Of these 74 new majors, 50% are women and 16% are under-represented minorities. In addition there is a consistent demand to enter the Wine and Viticulture major by change of major. Working with our staff advisor (Rachel Johnson), and the faculty recently articulated clear academic expectations for the ICMA process. In addition, the WVIT faculty hope to reopen the Minor after the WVIT Department is formed and additional resources become available.

For a variety of reasons, the 4-year completion rates for WVIT majors is less than optimal. The Program encourages all majors to complete their required internship during the winegrape harvest season in Fall quarter, thus a norm for completion of the B.S. degree is 4 years plus one quarter. Second, many required WVIT courses are heavily impacted. The “hands-on” teaching capacity of the Program faculty in the pilot winery and the vineyard have limited enrollment in essential senior level viticulture and enology courses. Third, the WVIT curriculum relies heavily on specific courses, taught by other departments that are also impacted. Finally, graduation is often delayed because many students choose to work during multiple winegrape harvest seasons.

**Figure 1. Enrollments in WVIT Minor and Major since 2004**

![Figure 1](image)

**Figure 2: Total numbers of WVIT Majors and Minors**

![Figure 2](image)
Wine and Viticulture Teaching and Curriculum

All students enrolled in the WVIT major learn the foundations of viticulture, winemaking and wine business through completion of a set of core courses (Appendix I). In addition, each student chooses to focus on one of the three fundamental areas by choosing a concentration, and completing an additional 55 units of upper division specialization courses. Course requirements for Wine and Viticulture majors have evolved significantly over the past eight years, as new courses tailored to the major have been developed and approved. Consequently, the curriculum in each new two-year catalog cycle has been significantly different, though the rapid changes in course requirements are stabilizing.

Initially, the wine business concentration had the highest proportion of graduates, in part because many early majors were originally Wine and Viticulture Minors from the Agribusiness Department. A full-time tenure-track faculty member in the Food Science Department (Ritchie) joined the program in 2007 to further develop and teach enology and sensory courses. Since that time, the proportion of students in the enology concentration has steadily increased, and this concentration now includes 45% of the majors (Figure 3). This shift heavily impacted the enology courses, and in 2011 “double concentrations” were eliminated to the disappointment of many new majors. Such significant shifts in student interest will likely exert a major impact on the needs for teaching resources within a WVIT Department. We hope that development of a dedicated WVIT Department faculty, with strong representation in all three sub-disciplines, will lead long-term stability with roughly equal numbers of students in each concentration.

Figure 3: Proportion of Graduates by Concentration by Year

Currently, there is no generally accepted terminal degree in wine education. The unique Cal Poly undergraduate program provides a tremendous opportunity to develop a new terminal Master of Science degree in Wine and Viticulture. As with the undergraduate major, three concentrations are envisioned that would leverage a number of extant campus strengths.
Enology, for example, might include courses from Biology, Chemistry and Biochemistry, and Statistics, while viticulture could include additional courses in Botany, PPSC, and Business/Management. The wine business emphasis might include additional courses from AGB, RPTA, and the Orfalea College of Business. A longer-term goal is to develop the equivalent of a “wine MBA” that might take the form of an MBA with wine business emphasis. Ample opportunities also exist for a Wine and Viticulture department to collaborate with Extended Education to develop a more formal program of short courses, on-line courses, Certificate programs, “extended field trips” both domestic and international, and international programs. Goals of the new Department include the establishment of a 1-year Professional Masters program catered to industry needs.

**RATIONALE FOR A NEW DEPARTMENT**

The collaboration among faculty in three cognate departments (Food Science and Nutrition, Horticulture and Crop Science, Agribusiness) was instrumental in the development of the Minor and the Major, and WVIT Program has operated as a collaborative venture among these three departments since its inception. Over the past decade, the wine industry in California and the US has grown rapidly, and enrollment in the WVIT Program has paralleled this rapid growth. Between 2006 and 2011 the dollar value of US wine sales grew by 16.1% to $34.3 billion (Euromonitor 2012), and a report by Stonebridge Research Group in 2012 indicates Napa Valley wine represents 17% of the volume and 31% of the value of wine sold in the US (Stonebridge 2012). The report estimates that the wine produced from Napa County alone has an economic impact of $13.3 billion for Napa County, $25.9 billion for California and $50.3 billion for the US economy. The Stonebridge Research Group further estimates that the Napa Appellation alone generates 46,000 full time equivalent jobs in Napa County, 102,000 in California and 303,000 in the Total US. Extrapolating from the Napa forecast generates an estimate of approximately 977,000 US jobs generated by the wine industry. Therefore, the wine industry has been a growth industry in the US, even during the significant national economic downturn, and needs well-educated and trained graduates from programs such as Cal Poly’s Wine and Viticulture Program.

The Program’s faculty members have reached a level of international prominence with presentations at leading national and international symposia and conferences, publications in peer-review journals, citations, service on editorial boards, and service on key industry boards. WVIT faculty members have received prestigious awards including two Sunkist College of Agriculture Faculty Awards, two Western Agricultural Services Outstanding Agribusiness Faculty Member Awards, and CAFES Outstanding Lecturer Award.

Obtaining departmental status is crucial for the future of Wine and Viticulture at Cal Poly. Currently, the Program Director lacks control over allocation of faculty teaching among the three wine sub-disciplines. Temporary part-time lecturers teaching many required courses in the Wine and Viticulture curriculum cannot be hired directly by the Program, but instead must be hired by each of the cognate departments adding an administrative burden on the cognate departments. Likewise, requisite performance evaluations for lecturers are conducted
independently by each cognate department, adding further to the administrative burden of each department and limiting the input from the WVIT faculty as a whole. Similarly, the RPT process for each tenure-track faculty member is run through each home department, limiting the wine expertise involved in faculty review, and limiting the ability of colleagues in the same program to support each other in the RPT process. Since each WVIT faculty member is also a member of a different department, we all maintain a split dedication to wine and viticulture. Finally, with the exception of the vineyard and pilot winery, the Program has control over no classroom, teaching lab, or research lab space.

A new academic Department will enhance the visibility and independence of Wine and Viticulture at Cal Poly, allowing the department head and faculty to better manage resources and to better serve our students, alumni, and the wine industry. Wine industry leaders have actively supported the WVIT Program both by serving on the Advisory Council, and by donating equipment, wine, grapes and dollars needed for an effective learn by doing wine education. The current Program structure puzzles many members of the Advisory Council. Industry supporters have witnessed the inefficiencies of the administrative and management side of such the current arrangement, and the deleterious impacts this has had on student learning. The Program’s Advisory Council and other Cal Poly supporters in the wine industry, students, and faculty all agree that it is in the best interest of efficient resource allocation and compliance with regulations to create a new department with a budget and staff managed by a department head.

Department status is critical for the program to:

- Gain professional credibility within the California wine industry
- Demonstrate campus commitment to Wine and Viticulture at Cal Poly
- Better advocate for faculty resources to serve and support its students
- Effectively recruit outstanding new faculty dedicated to wine and viticulture
- Position itself for obtaining extramural support to serve and support its faculty
- Efficiently manage the campus vineyards
- Efficiently manage the pilot winery and development of a new winery
- Effectively conduct advancement efforts for the Cal Poly Winery and endowed chairs
- Conduct scholarly research in wine and viticulture
- Develop international programs that take advantage of the seasonal harvest/crush (northern hemisphere Summer, Fall; and southern hemisphere Winter, Spring)
- Serve on college and university committees and represent the needs of the department
- Better collaborate with other university wine and viticulture programs (e.g., UC Davis, CSU Fresno)
- Develop a visiting scholar program and a series of regional wine industry gatherings

**Resource Implications of a new Wine and Viticulture Department in CAFES**

The Program aspires to construct a privately funded campus wine innovation center that would include modest teaching, research, and office space. A campaign to raise ~$8.9M for
design and construction of a new winery building to house the proposed new department is underway, with ~$2.7M raised to date.

Additional resources necessary to convert the current program into a new department should be minimal. The Program currently has a small state budget that funds one full-time academic coordinator, and a working budget from College-Base-Fees based on student enrollment. Faculty resources and space provided by each of the cognate departments to teach the Wine and Viticulture curriculum over the past several years will need to transfer into the new WVIT department. Enology courses have involved one tenure-track faculty member and part-time support from several lecturers in the Food Science and Nutrition Department. The Program Director’s position is also housed in the FSN Department. Teaching space for enology includes the Pilot Winery and a classroom in the Crops Unit, and teaching laboratories in the Food Science and Biology Departments. A modest research room was also allocated to Enology in Building 11. Teaching of viticulture-related courses has recently involved ~1.3 tenure-track faculty positions together with ~0.8 temporary lecturer position devoted to viticulture lecture, lab and field courses taught in the Horticulture and Crop Science Department. In addition to the campus Trestle vineyard, viticulture courses have used classroom and laboratory space in the HCS Department. Wine business courses have been taught by many AGB faculty over the years. Two current AGB faculty members have taught WVIT-related AGB courses almost exclusively in recent years, one of whom will still be assigned to teach the 4-unit AGB 405 course for two quarters each year. Computer lab classrooms needed for the wine business classes have been provided by the AGB Department. Finally, a full-time temporary lecturer manages the internship program, and teaches a wine sales class with funding through the Horticulture and Crop Science Department.

We propose that each of the faculty members that have been teaching required courses in the WVIT curriculum be transferred into the new Department. Following these transfers, the new WVIT Department will include ~5.3 ladder-rank faculty positions, and ~2.5 temporary lecturers. Proposed teaching assignments for the WVIT courses are listed in Appendix II. The overall impact of these transfers on teaching in the former home departments will be minimal. Transfer of Ritchie, Cooper, and Brain will have no impact on teaching in the FSN Department, and transfer of the Patterson position will have no impact on teaching in the HCS Department. Wolf will continue to teach 2 AGB courses, and Costello will continue to teach his normal complement of PPSC courses (PPSC 110, 311, 421, and 431).

Most of the WVIT lecture courses will continue to be taught in general assignment classrooms throughout campus. Specialized Wine and Viticulture courses, however, are being taught in space controlled by AGB, FSN and HCS. Until construction of a new campus winery building is complete, all of this teaching space needs to be made available to the new Department. Viticulture courses have been taught in the teaching classrooms and a dedicated Viticulture “lab” housed in the Crops Unit (Building 17). Responsibility for the 15-acre Trestle Vineyard (13 acres planted) used for viticulture classes was transferred to the Program last summer, though responsibility for the smaller variety block vineyard was retained by
HCS. Specialized enology courses are currently taught in Building 24 (sensory analysis, wine analysis and amelioration), and in the campus Pilot Winery (in the Crops Unit). Computer classrooms used to teach the wine business classes are housed in Building 10. Space for a Department office should become available following the movement of the Natural Resource Management and Environmental Sciences Department into the new Science Building this spring/summer. The new Department will also need office space to assign to the many Lecturers who are hired to teach required courses.

**Timing of Department Formation**
For a variety of reasons, the WVIT Program is at a critical juncture in its evolution. The program faculty is hopeful that a new Wine and Viticulture Department can be formed before the start of the Fall 2013 academic quarter.

**Future Growth of Wine and Viticulture**
Growth of the California wine industry continues to be impressive, and both student demand for wine and viticulture courses, and wine industry demand for hiring Cal Poly graduates remain very strong. Since the Wine and Viticulture academic programs began in the late 1990s, the number of faculty involved in the Program has declined significantly. As a consequence of limited teaching resources, enrollment in the academic minor was stopped in 2011. Dual-concentration for WVIT majors, seen by both students and industry employers as excellent value-added to the WVIT degree, was stopped in 2012. Enrollment in the major, and in many required courses, remains restricted. Required viticulture courses are offered only one quarter per year, leading to large upper division enrollments and slowing student graduation rates. Several of the required enology courses are offered only one or two quarters per year, also leading to large enrollments and slowing student graduation rates. Reopening the minor, expanding the major and allowing dual-concentrations, and developing stronger industry relationships are all vital for the long-term success of Wine and Viticulture at Cal Poly. Achieving success will depend upon new campus resources, specifically new faculty positions and teaching/research space.

**References**


**APPENDIX I. WVIT Major requirements**

**Core Courses (required by all three concentrations)**
- AGB 214 Financial Accounting
- AGB 401 Managing Cultural Diversity in Agricultural Labor Relations (USCP
- BRAE 340 Irrigation Water Management
CHEM 111 Survey of Chemistry
MATH 118 Pre-Calculus Algebra
  or MATH 161 Calculus for Life Sciences I (B1)
  or MATH 221 Calculus for Business and Economics
SS 121 Introductory Soil Science
STAT 218 Applied Stats for the Life Sciences (B1)
  or STAT 217 Introduction to Statistical Investigations (B1)
WVIT 101 Orientation to Wine and Viticulture
WVIT 102 Global Wine and Viticulture
WVIT 202 Fundamentals of Enology
WVIT 210 Viticultural Practices
WVIT/FRSC 231 Viticulture 1
WVIT/FRSC 331 Viticulture 2
WVIT 339 Internship in Wine and Viticulture
WVIT 343 Branded Wine Marketing
WVIT 423 Wine Law and Compliance
WVIT 442 Sensory Evaluation of Wine
WVIT 463 Issues, Trends and Careers in the Wine Industry

**Wine Business Concentration**
AGB 212 Agricultural Economics
AGB 310 Agribusiness Credit and Finance
AGB 323 Agribusiness Managerial Accounting
AGB 422 Logistics and Global Agribusiness
BIO 111 General Biology
ECON 222 Macroeconomics
WVIT 302 Wine Fermentation Laboratory
WVIT 433 Wine sales and e-commerce
WVIT 444 Wine Market Analysis
WVIT 450 Wine Business Plan
WVIT 460 Senior Project - Wine Business
Advisor Approved Electives

**Viticulture Concentration**
BOT 121 General Botany
BOT 323 Plant Pathology
CHEM 312 Survey of Organic Chemistry
ECON 201 Survey of Economics
PPSC 311 Agricultural Entomology
PPSC 321 Weed Biology and Management
SS 221 Fertilizers and Plant Nutrition
WVIT 302 Wine Fermentation Laboratory
WVIT 414 Grape Pest Management
WVIT 415 Grapevine Physiology
WVIT 424-427 Winegrape Growing and Vineyard Management I,II,III,IV
WVIT 461-462 Senior Project I, II - Enology and Viticulture
Advisor Approved Electives

Enology Concentration
CHEM 312 Survey of Organic Chemistry
CHEM 313 Survey of Biochemistry and Biotechnology
ECON 201 Survey of Economics
MCRO 221 Microbiology
WVIT 203 Anatomy of a Wine
WVIT 301 Wine Microbiology
WVIT 365 Wine Analysis and Amelioration
WVIT 404-406 Winemaking I,II,III
WVIT 461-462 Senior Project I, II - Enology and Viticulture
Advisor Approved Electives
APPENDIX II. Wine and Viticulture courses and teaching assignments

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
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<td>WVIT 405 Winemaking II</td>
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<td>WVIT 444 Wine Market Analysis</td>
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WHEREAS, There are no university policies governing the maximum number of finals a student can be required to sit in one day; and

WHEREAS, The final examination schedule is available to students before Plan a Student Schedule (PASS) opens for registration in order to inform students of potential overload conflicts (registrar.calpoly.edu/content/Calendars_Deadlines/index); and

WHEREAS, Final examinations are required, except in specific circumstances (see CAM 484.4), to be administered during finals week (CAM 484.1 and 484.2); therefore be it

RESOLVED: That faculty should make a reasonable effort to offer an alternative final examination time to students with more than two final examinations on the same day; and be it further

RESOLVED: That faculty schedule the alternative final examination time during finals week (except in the circumstances defined in CAM 484.4); and be it further

RESOLVED: That faculty include the date and time of the final examination on the course syllabus, if the course uses an in-class examination as its final assessment, and, whenever applicable, provide students with advance notice if the final examination date and/or has been rescheduled with the written approval of the appropriate Dean; and be it further

RESOLVED: That a student should notify an instructor of the final examination overload conflict and request to reschedule the final examination by the end of the sixth week of instruction or, if the examination has been rescheduled by the instructor, within one week of receiving notification of the change.