Academic Plan for Enrollment report: Orfalea College of Business

Following the guiding principles presented in Vision 2022, the Orfalea College of Business envisions that our college will continue to maintain our polytechnic identity with an emphasis on experiential learning (Learn by Doing) and student success. These are some of the enduring attributes that will continue to set us apart from other academic institutions. The long term vision of our college is to become the undisputed leader in experiential business education. This guiding vision will help the college navigate and succeed through the challenging forces and opportunities we face in the future.

Section 1: Tiers 1 and 2 questions

1) The forces that will be shaping Cal Poly and OCOB.

Globalization: It is likely that 2030 will bring us students from different backgrounds and educational systems. We should anticipate these developments and prepare by increasing the diversity of students. We are heading into an era of all business being ‘global’ business. Diversification of the student body will become a necessity rather than a luxury. A report by McKinsey Global Institute in April 2014* demonstrates that continuing growth in global trade will positively impact the GDP. According to the report, the US ranks third in terms of its connectedness to global trade. Our students and students from other countries will have more opportunities to participate in the global economy. The level of interest among students in international travel and study abroad programs will continue to grow as the force of globalization will require both multicultural and linguistic competence.


Impact of technology on curriculum: Information technologies such as Big Data and online social media have become increasingly central to the business practice. Across the OCOB academic disciplines, our college has started preparing students for the technology-driven business environment and will continue to do so to meet the future demand through new degree and Minor programs.

Impact of technology on instruction and learning spaces: We will need modern, flexible learning spaces (e.g., classrooms, labs, collaborative spaces, etc.) that will meet a wide variety of pedagogical needs. Students will have unfettered access to information and will have more learning opportunities outside of classrooms. Online instructional technologies and social media will become more common in order to increase our reach to potential and current students.

Applied research: The growth in scientific research, information technology, general knowledge and consumer demand will create a need for research that applies basic knowledge into specific areas. This is especially true in the areas of applied technology, market research, financial analysis, economic analysis, and packaging science. The abundance of data and analysis tools (e.g., in Big Data and Analytics) will create new opportunities in applied research for both faculty and students.

Expanding the “Polytechnic frontier”: Trends in the job market will require students to obtain more specialized training in order to enter the workforce. During its early years, Cal Poly met the polytechnic needs of businesses by putting graduates into the job market with what would today amount to
vocational-level training. In order to serve the current business community, Cal Poly and OCOB have made a transition to fulfill its polytechnic mission by training undergraduates. In certain disciplines such as Engineering and Accounting, we have already observed a need to go beyond undergraduate-level training. Moreover, an increasing number of industries expect college graduates to possess highly specialized knowledge and expertise. In recent years, we have observed this trend in the consumer packaging industry and the business analytics discipline. As a result, we anticipate that in order to meet the increasingly sophisticated needs of business and industry at the polytechnic frontier, Cal Poly and OCOB will need to offer more post-baccalaureate training (e.g., graduate degree or certificate programs) in specialized professional fields.

**Public/private funding:** The trend of declining public funding for CSU is expected to continue. Cal Poly and OCOB will need to rely less on state funding and look for funding from private sources.

2) **Our students in 2030. Their expectations and interests.**

Cal Poly, if it remains true to its polytechnic mission, will continue to attract students who value learning through experience and are not uncomfortable getting their ‘intellectual hands’ dirty. Demographically, the state of California is expected to see an overall decline of college-ready students. However, with Cal Poly’s reputation and location, we expect that Cal Poly and OCOB will continue to attract top high school students both within California and elsewhere as well as highly qualified transfer students from junior colleges in California. Entering students will need to have a solid and broad education in the fundamentals so we can quickly and effectively build the creative, technical, and problem solving expertise they need to be successful. With our polytechnic mission, students who choose to attend Cal Poly will continue to be career-oriented. As a result, they will expect to obtain high quality education and training for specific careers. We expect that academic programs with direct career paths in professional fields will continue to be in high demand.

As with the demographic trend in the California population, our student body will become more diverse. Cal Poly’s ongoing efforts to recruit more out-of-state and international students will enrich the multicultural experience as well as create a rich culture of diversity and inclusivity on campus.

As mentioned in 1), we also expect that the proportion of graduate students on campus will continue to increase. Students will be more interested in both degree-granting and non-degree granting programs that have a direct career path. In addition, there will be more demand for career “retooling”. With a rapidly changing job market, mid-career retooling will become more common. We expect that academic programs designed for mid-career professionals will be aligned with specialized professional fields in Business, Economics, and Industrial Technology.

To meet new demands and to increase our outreach to current and potential students, flexible program and course offerings will become more necessary. Technology will become more integrated into both synchronous and asynchronous modes of instruction.
3) Global economy in 2030.

The global economy in 2030 will be made up of traditional leaders such as the U.S. and UK as well as new economic powers such as China, India and Brazil. Business students will have to be effective in intercultural matters. Global awareness will be a must have for students of business. It is conceivable that individuals who are multicultural will become the norm rather than the exception. Information and communication technology will blur the traditional lines which used to separate nations and organizations. The notion of a national organization will be outdated, as multi-national becomes more the norm. We need to understand the current world dynamics, leverage current trends, but prepare for a “flatter” world where competitive advantage moves across borders.

To help graduates become career ready in the globalized workplace, we need to encourage students to study foreign languages and cultures. Cal Poly has already started increasing the number of international travel and study abroad courses. We should continue to enhance students’ multicultural experience by expanding educational and research collaboration with foreign institutions.

4) What will Cal Poly and OCOB be preparing our students to do? What will Cal Poly and OCOB students need to learn to be successful? What level(s) of education will they need?

Our students need to be career-ready. A college degree will become a minimum requirement for entry-level professional employment. Quantitative skills, critical thinking, multi-tasking, embracement of current and emerging technology, problem-solving skills, ability to analyze and interpret data are among essential skills and knowledge for students to be successful in their careers.

Moreover, ‘soft skills’ such as networking, business communications, negotiation, and change management will also contribute to the career readiness of OCOB students. Cal Poly and OCOB should also offer our students more opportunities to grow professionally (e.g., community involvement, professional development workshops, and other extra-curriculum activities).

We also expect students to be informed and knowledgeable about the world around them. Ability to work in a diverse, multicultural environment will likely become critical to success in the business world of the future.

As mentioned above, in addition to undergraduate-level training, post- baccalaureate education such as graduate degrees and graduate certificates will become more important for career success and mobility.

5) What are the implications for emerging fields and integrated learning that goes beyond traditional disciplines?

Emerging fields of study will encompass multiple academic disciplines. We already observe this trend where offering courses in an emerging field such as Data Analytics requires collaboration across traditional academic disciplines (e.g., Economics, Information Systems, and Marketing) and has important implications in related fields (e.g., Accounting, Supply Chain, etc.). We also anticipate increased collaboration across all colleges at Cal Poly (e.g. business, engineering, agriculture, food and environmental science, etc.). As such, our college is planning to propose a Minor program in Entrepreneurship to allow OCOB students to interact with non-Business students. This program would
complement the work the college is already doing with the Center for Innovation and Entrepreneurship and the San Luis Obispo Hothouse.

**Section 2: Six Academic Areas in OCOB:**

The overall trends, opportunities, and challenges described above apply to the OCOB as a whole, especially to the largest degree program in our college, the Bachelor of Science degree in Business Administration (BSBA). However, within the college, there are six academic areas, each with its own unique concentrations and/or degree programs. The specific trends, opportunities, and challenges faced by individual OCOB academic disciplines are described below.

**Accounting:** The Accounting area offers an Accounting concentration within the BSBA program as well as a Master’s degree program in Accounting with specializations in Taxation and Financial Accounting. Since January 1, 2014, the Certified Public Accounting (CPA) education requirements stipulate that individuals must earn at least 225 quarter credit units in qualifying courses to be eligible for CPA licensure. Presently, Just over 30% of Cal Poly accounting students are meeting their requirement by pursuing their masters in accounting. This is one of the examples where the polytechnic frontier has been extended beyond the traditional undergraduate education requirements, which will continue to pose both challenges and opportunities for Cal Poly and OCOB.

Accounting firms have reiterated the importance for students to become eligible for CPA licensure. The demand for accounting graduates has grown from 25,488 in 2008 to 40,350 in 2012. The employment of accountants and auditors is projected to grow 13 percent from 2012 to 2022 according to the Bureau of Labor Statistics. This growth does not reflect the demand anticipated with the retirement of the Baby Boomers. At Cal Poly and OCOB, the four largest Accounting firms are among the top employers of undergraduate business students. In order to meet the increasing demand of the Accounting industry, the OCOB is proposing a Minor program in Accounting which will offer non-business students to have an opportunity for a career in the accounting profession. To meet the CPA requirements, we expect that more students both from the Accounting concentration within the BSBA program and from the Accounting Minor program will enroll in post-baccalaureate education.

Technology skills will become increasingly important to the Accounting profession. According to the American Institute of CPAs*, the percentage of business graduates hired by the advisory practice (e.g., compliance and technology consulting) within accounting firms has grown from 6% in 2002 to 26% in 2012. Advisory services will see a continued growth particularly in compliance with the growing amount of laws and regulations. Students must understand the rule and application of law and ethical issues. As mentioned above, integration of technology in a business curriculum will continue to play a critical role to achieve student success.


**Economics:** The Economics area currently offers a Bachelor of Science degree in Economics, a Minor program in Economics, and two concentrations for OCOB students: Quantitative Economics and Real Estate Economics. In Fall 2014, the Economics area also launched a Master of Science in Economics degree program.
In economics and business, there has been a huge increase in data availability to business over the past 20 years. Data availability has exploded over the past generation with the rapid advance of computing power. The lack of students trained in how to present and interpret data is recognized as one of the biggest supply imbalances in history in terms of matching the capability of students with the needs of industry. “Big data” needs of business and industry have added dimension to the polytechnic frontier, and training economics students to be economists by providing master’s level classes in econometrics and data analysis for business (accounting, finance, marketing, and management) provides an area of rapidly-increasing value for a polytechnic university. For economics, the undergraduate field of study will continue to be useful for politics and law, which limits the ability to add technical rigor to the undergraduate degree. Instead, the demand for specialized master’s programs is growing nationally to provide a 1-year intensive program in the purely technical aspects of analyzing economic and business data.

The global economy in 2030 will rely much more on analysis of data. The rapid increase in computational power over the last 20 years has created a huge generational gap in the technical sophistication of society. Business and industry over the next 20-50 years will become immensely more data oriented as baby-boomer CEOs retire and are replaced by generations raised in the computer age. We will need to train economics students to have hands-on experience working with business data.

Economics students will need to develop better affinity between theory and practice; greater emphasis will be placed in the market on the use of data to inform business decisions and students with high-level training in this area will be well-positioned to succeed in the 2030 economy. In business and economics, this will mean carving out MS Economics and data-analytics programs to meet the polytechnic frontier with students who have hands-on experience working with business and industry data.

**Finance:** The Finance area offers a concentration in Financial Management within the BSBA degree program. The vast majority of graduates from the Financial Management Concentration are hired as entry level financial analysts. Financial analysts provide guidance to businesses, governments, and individuals making financial and investment decisions. They provide guidance in managing financial risks and assess the performance of stocks, bonds, real estate and other types of investments. According to the U.S. Bureau of Labor Statistics, Employment Projections Program, employment of financial analysts is projected to grow 16 percent from 2012 to 2022, faster than the average for all occupations. A growing range of financial products and the need for in-depth knowledge of geographic regions are expected to lead to strong employment growth.

Investment portfolios are becoming more complex, and there are more financial products available for trade. In addition, emerging markets throughout the world are providing new investment opportunities, which require expertise in geographic regions where those markets are located.

The demographic and college-preparation of our students will resemble those entering technical fields such as engineering (STEM-based education). Their expectation will be to get a highly rigorous training that is commensurate with the requirements of becoming a financial analyst. Their interest will be in modeling complex data, computation, and risk management.

Financial analysts will perform the following tasks in the future: 1) recommend individual investments and portfolios of investments; 2) evaluate current and historical data; 3) study economic and business trends; 4) study a company’s financial statements to determine its value; 5) meet with company officials
to gain better insight into the company’s prospects and management; 6) prepare written reports; 7) Meet with investors to explain recommendations; 8) help governments and public institutions in planning for their financial needs and managing risk (e.g., pension planning and managing tax revenues and public expenditures)

Financial analysts will generally focus on trends affecting a specific industry, geographical region, or type of product. For example, an analyst may focus on a subject area such as the energy industry, a world region such as Eastern Europe, or the foreign exchange market. They must understand how new regulations, policies, and political and economic trends may affect investments.

Investing will become far more global, and financial analysts will continue to specialize in a particular country or region. Companies want those financial analysts to understand the language, culture, business environment, and political conditions in the country or region that they cover.

To be successful, our students will need to possess technical and quantitative skills, be able to analyze large amount of data, understand behavioral issues, and build valuation models. They will also need to attain high level of education (both undergraduate and graduate levels) in finance.

**Industrial and Packaging Technology (IPT):** The IPT area currently offers a Bachelor of Science degree in Industrial Technology, two Minor programs in Industrial Technology and Packaging, and two concentrations within the BSBA program: Consumer Packaging Solutions concentration (jointly with the Marketing area) and Entrepreneurship concentration. The IPT area is also planning to propose a new graduate program in Packaging and Logistics. In addition, the IPT faculty are actively involved with Cal Poly’s Center for Innovation and Entrepreneurship (CIE).

As mentioned above, the growth in scientific research, information technology, and consumer demand will create a need especially for research applied packaging science and applied technology. We need to be able to keep up with the technology and new knowledge. The growth in knowledge availability and complexity will create a demand for specialists that have the depth to apply knowledge in a narrow realm, particularly for faculty and students in STEM-related fields such as industrial technology, packaging and logistics.

For the entrepreneurship discipline, students are trained as “business generalists” and broad thinkers. They will need to be able to work across disciplines, break down the proverbial ‘silos’, and integrate knowledge to solve big problems. To be effective leaders and strategists, students need to be current and comfortable with emerging trends in business and industry. As mentioned above, the Entrepreneurship faculty is preparing to offer a Minor program in Entrepreneurship to offer students from around campus the opportunity to collaborate and explore different career potentials in emerging industries.

To be successful, we need to deliver our courses in a modern and flexible learning space. This includes flexible laboratory that can be continuously changed and reconfigurable (especially for industrial technology and packaging courses) as well as learning spaces that support teamwork and collaboration (e.g., for Entrepreneurship courses). Students need to learn to be problem solvers. Disruptive change and evolution in technology is to be expected. Our students and teaching capabilities need to be ready to both drive and support these changes. The expectation will be that students are familiar with popular
technology when they enter Cal Poly, and they will be proficient in professional technology when they graduate.

To keep up with the changes in the industry and job market demand, we need to be able to propose new courses and programs more quickly. We can no longer afford to ‘teach to the catalog’ that updates only every 3 to 5 years. We’ll need administrative structures that would allow us to become better environmental scanners in order to deliver contemporary courses in a timely manner.

Management, HR and Information Systems (MHRIS): The MHRIS area offers two distinct concentrations within the BSBA degree program: Information Systems concentration and Management & HR concentration.

The Information Systems (IS) concentration consists of a broad-based, sought-after skill set that prepares them for an array of domestic and global career options in the information systems field. Cal Poly IS concentration graduates generally work in consulting firms, high tech firms, startups, and corporations with information technology departments.

Information Technology and data analytics will continue to increase in importance for the business world. Organizations have access to vast quantities of information, and desire employees who know how to process and present that information. The trend is expected to continue, as data visualization, business intelligence, and social media dominate the landscape over the next few decades. Information Systems skills will be required of all managers and business leaders, not just IT professionals.

The “new Information Systems professional” is a people-person but can also “talk technology” and can solve meaningful organizational problems. IS professionals translate information needs into technology needs and translate technological capabilities into new business capabilities. Historically, about 50% of IS students are women, and we expect this trend to continue in the future.

To be successful, Information Systems students need to be able to obtain, process, and dispense information. The ability to communicate difficult concepts will be of increasing importance in the years to come. We expect that it will become less important to learn technical tools (such as programming skills), and more important to learn how to use those tools in the business world. We see a future world where any individual can program and develop an application, as programming languages will become more and more natural. As such, the necessity for programming classes at a college level will decrease, and the need to learn higher-level skills and knowledge will increase. These essential higher-level skills include data management, project management, system analysis & design, and data science.

The Management & Human Resources concentration prepares students for general leadership and management positions, as well as careers in more specific Human Resources (HR) positions. Through an experiential learning approach, the HR portion of the curriculum prepares students for a career in specific HR functions such as recruitment, staffing, training and development, and compensation. Technology companies in California have proven to be an important source of employers for HR students. There is a big imbalance between demand and supply for workers with highly specialized technical skills, such as programming, in that industry. Hence, recruiting and retaining star employees is a key strategic need for employers.
The Management portion of the curriculum prepares students for entry-level leadership and management positions, such as management training programs, management consulting, and managerial positions in small businesses and organizations.

As students in the Management & Human Resources concentration are trained for general business leadership and management, it is uniquely important to these students to learn collaborative skills with a deep understanding of diverse and multicultural workforce of the future. The curriculum will continue to emphasize readily applicable skills such as leadership, organizational design, development and change, global business management, and negotiation. More specifically, one of the most critical skills in effective management is the ability to gracefully navigate and harness information and communication technology in the workplace. Our students will learn how technology impacts classic managerial functions, like leading others, negotiating and managing change. For example, our students will need to learn how to lead virtual teams where members are geographically distributed and must rely on technology to communicate and collaborate. Similarly, for negotiation skills, students will need to learn how to broker complex deals via online, electronic channels, often without many non-verbal cues that are available when parties are face-to-face. Finally, managing change will require the ability to scan the environment and assess new technologies that might be both threats and opportunities. This theme of the need to effectively harness technology permeates each of the core managerial skills that our students will need to learn.

The future curriculum will need to address emerging industry trends and scientific knowledge with an emphasis on the following.

- Strategic HR: The links between HR practice alignment and employee and firm performance. This includes the selection, design, and implementation of HR practices to support business strategies and objectives.
- HR Analytics: The design, selection, implementation, and interpretation of HR-related measures. This also includes development and use of HR Information Systems, aligning HR measures with other business measures, and working with other business functions.
- Social Media and Recruiting: Use of new and existing social media networks to improve recruiting effectiveness, save time, and lower recruiting costs.
- Talent Management: Management succession planning, the development and retention of human capital, and employee performance appraisal systems.
- Dynamic Organization Design: Emerging approaches to work and organization design, designing and leading team-based organizations, designing organizations for innovation and agility and, organizing to manage knowledge.
- Managing Organization Development and Change: Classical approaches to change, planned change and development interventions and, the process of leading and implementing change.

**Marketing:** The Marketing area in OCOB offers two concentrations in Marketing Management and Consumer Packaging Solutions (jointly with the IPT area) within the BSBA degree program. In addition, the Marketing area is currently proposing an interdisciplinary Minor in Integrated Marketing Communications (in collaboration with Journalism and Graphic Communications departments).

In addition to the aforementioned forces shaping the Business discipline, the Marketing area sees the following themes shaping the practice of marketing:
• Information technology is becoming increasingly central to marketing
• Big data are growing at an exponential rate and transforming the way a firm responds to customers and shaping the customer experience
• Consumers around the world have made social technologies a part of their lives. Business use of social technologies enables value-creating levers across the value chain
• The use of new technologies (e.g. neuroscience) in market research

As such, marketing students will need to learn:

• to use marketing and social media technologies to accomplish key marketing functions across the value chain
• to ask the right questions and get the right answers by understanding what data are available and what data are needed to complete the picture
• to access information (research librarians, business analysts, IT managers, Database administrators, and data scientists become key partners)
• to work with others (e.g. computer scientists, statisticians) to analyze big data and to report it visually in ways that facilitate decision-making-- graphic design and art to represent this data and keep it engaging.
• to balance consumer privacy with the ubiquitous availability of consumer information and to make ethical decisions about the use of consumer data to inform new product development and improvements in the customer experience.

According to the Marketing Area Taskforce, a new type of marketer—part strategist, part creative director, part technology leader, and part teacher—is emerging (Brinker & McLellan, July-August 2014, Harvard Business Review, p.82). Marketers must be “whole brained,” yet we shouldn’t lead students away from their strengths.

Marketing students, whose strengths tend toward the creative, will need to “make data their friend.” While storytelling and writing are creative processes, data from consumer insights support the vision. Marketing students whose strengths tend toward the analytic will need to communicate data visually, and in elegantly simple terms, so that it can be used by the creative teams and marketing decision makers. Cal Poly Marketing is evolving its program(s) to ground students in the analytic and in the creative aspects of marketing practice.

**Section 3: Post-Baccalaureate Education**

Currently, we have three graduate degree programs at Orfalea—Master of Business Administration (accelerated, traditional, dual program with engineering, and a joint engineering management program), Master of Science in Accounting (taxation and financial accounting), and Master of Science in Economics. We hope to launch two new specialized MS programs in Business Analytics and Packaging and Logistics. The overall trends, opportunities, and challenges described above apply to the OCOB as a whole, in addition to the ones faced by the following specific graduate programs.
Master of Business Administration (MBA)

Master of Business Administration at Orfalea is delivered in an accelerated (10 months to completion) and the more traditional (two years to completion) time frame. It offers several optional specializations/concentrations such as Architectural Management and Graphic Communications. In collaboration with the College of Engineering we offer an interdisciplinary program in Engineering Management Program as well as several dual degree programs designed for engineers who want to do business. The dual MBA & MS Engineering programs afford highly motivated students the opportunity of completing two Masters degree programs in two years.

Cal Poly’s MBA program is excellent value for money. It remains true to the Cal Poly philosophy of "learn-by-doing". The in-class experience includes numerous simulations of management decision-making scenarios, case studies, team exercises, extensive interaction with faculty and other students, and personal communication and presentation skills enhancement.

Based on the ‘Future of Graduate Education Commission Report’ Global Healthcare and the Integration of Design (Engineering), Business (MBA) and Public Policy are going to experience growth over the next two decades. Cal Poly’s dual degree programs in which students work toward an MBA alongside an MS in Engineering are strategically aligned to benefit from this growth. Similar dual degree granting initiatives with other disciplines such as Biology and the Social Sciences will provide much needed experts in Global Healthcare and Public Policy.

As stated above engineering, health and public policy are likely to become growing sectors in terms of employability. Therefore, the Cal Poly graduate program in business administration will focus on aligning with these three sectors. Such academic programs are well suited to create graduates that will be poised to be relevant and productive in the future. Leadership and adaptability will become ever more critical. The experiential, residential education that Cal Poly offers is particularly suited to hone these skills.

We occupy a premier location in the Central Coast American Viticultural Area spanning from Santa Barbara County in the south to the San Francisco Bay Area in the north. The region boasts of roughly 100,000 acres planted to wine grapes, with Chardonnay accounting for more than half of the total. This industry is not only key to the region but fast developing in emerging global economic powerhouses. We envisage collaborating with the College of Agriculture, Food and Environmental Sciences to create an interdisciplinary MBA with a focus on the viticulture industry.

MS in Economics

Cal Poly has traditionally been shaped by its polytechnic mission, and as technology continues to play a growing role in our society, that polytechnic mission now extends beyond its traditional colleges of engineering and agriculture. Providing quantitative training is now an important part of education in Economics as well. In particular, economists need to have strong skills in data analysis, econometrics, statistics, and computer programming. Data availability has exploded over the past generation with the rapid advance of computing power. Recent articles in the New York Times, the Wall Street Journal, and Forbes (just to name a few) have highlighted the growing demand in the private sector for workers with training in Economics and Econometrics who can analyze large datasets and make forecasts to help businesses make smart decisions and identify new opportunities. Our MS Economics program has been designed with this new trend in mind, putting greater emphasis on econometric and computational
analysis than traditional economics degrees. We see this trend continuing into the future as computing power increases and allows larger and larger data sets to be constructed and more sophisticated analyses to be competed.

Business and industry over the next 20-50 years will become immensely more data oriented as baby-boomer CEOs retire and are replaced by generations raised in the computer age. Economics students will need to develop better affinity between theory and practice; greater emphasis will be placed in the market on the use of data to inform business decisions and students with high-level training in this area will be well-positioned to succeed in the 2030 economy. In 2030, a graduate degree will be standard for anyone who engages in economics analysis as a career.

MS in Accounting

The Master of Science in accounting program is a one-year intensive program that enables its graduates to meet the academic requirements for licensure as Certified Public Accountants in California. The program takes into account the new academic credit requirements for CPA licensure which took effect January 1, 2014. The current requirement for CPA includes 225 units of instruction, which has created demand for the graduate program because Cal Poly students receive 180 units of instruction in the bachelor’s program. Each of the MS in Accounting tracks (tax and financial reporting) prepare students for employment in a major service line of a public accounting firm.

The MS programs in accounting prepare student to practice as CPAs with public accounting firms as well as to be successful in their positions when they leave the practice of public accounting. Approximately 10% of the employees that enter public accounting are employed in public accounting after 10 years. Many of these employees move on to work in finance and accounting for industry. Because of this level of attrition and the hiring model for these firms to hire primarily off of college campuses, demand will be sustained and will grow. Cal Poly is currently not able to meet the demands of the employers in our region which is primarily the Bay Area.

The demand for CPAs has been strong historically and is expected to continue to stay strong as the companies and their financial structures and transactions continue to become more complex. The demand for graduates of the Masters program by the public accounting firms would double immediately if we are able to attract a sufficient number of students into the Masters program. We have been told by our advisory board that they would hire double the number of qualified students that we currently produce. We need to improve our marketing to attract additional students from other colleges on campus as well as other undergraduate institutions to enter our masters programs.

We expect the level of responsibility of CPAs at each level to be higher than in the past. We expect for this trend to continue and accelerate in the future. Accounting students in the future will develop strong critical thinking and analytical skills to be successful in a profession that is automating rudimentary tasks. Additionally, some tasks that require low levels of judgment are completed offshore. Regulation of the accounting profession has become a significant factor in the last 10 years and will continue to play a role in shaping the responsibilities of accounting firms. Business development has become a larger part of the responsibilities of managers and partners in the accounting profession. Information technology has become an integral part. This general rise in the type of responsibilities of practicing CPA requires a Masters program that provides both a technical and qualitative curriculum.
**MS in Business Analytics (under consideration)**

Data are ubiquitous in business today. Without data, businesses today are left to play catch up. ‘Big data’ has created a frenetic demand for data specialists who comprehend business problems. According to the Bureau of Labor Statistics, “Companies of all sizes are expected to add enough data analysts that, as a group, the job category should grow by 45 percent through 2018, making it among the fastest-growing career choice out there.”

Data Analytics is a multi-dimensional discipline including statistics, computer science, economics, and various business areas. Our proposed MS in Business Analytics will be a comprehensive, one year, business degree program that encompasses all areas of business including economics, finance, accounting, marketing, and information systems. It will equip students with the necessary quantitative tools to analyze all types of data—big and not so big, cross sectional and time series. Unlike other programs that focus primarily on the big data methodologies, we take a holistic approach in which alongside the necessary quantitative tools, students are equipped to identify key business problems, translate them into relevant data questions and tasks and, after working through the analytics, use the insights into specific business actions.

In today’s increasingly competitive marketplace, organizations need individuals with the requisite skills to make data informed decisions. This has created what some believe is the biggest imbalance ever between demand and supply of people with data analytics skills in the workforce. Hal Varian (Chief Economist at Google) believes that being a data analyst will be the sexiest job for the next 10 years. Many major companies are currently managed by engineers and computer scientists with little business knowledge, which offers great opportunities for managers who possess both business and analytical skills.

In sum, the proposed MS in Business Analytics program is both timely and unique. It is truly an embodiment of the polytechnic spirit. We expect great growth in the program.

**MS in Packaging and Logistics (under consideration)**

The total value of global trade today exceeds $20 trillion. The explosion in global trade that has occurred in the last two decades is in part a reflection of the innovations in logistics and changes in policies in countries around the world that have led to a reduction in the costs of shipping goods and services across borders. Global logistics industry is demarcated as contract logistics, ground transportation, courier express parcel, freight forwarding, fourth-party logistics and distribution. In the recent decade, due to the recognition of the significance of the interrelation between packaging and logistics, a new discipline “Packaging Logistics” has evolved.

There is an imperative tendency to consider packaging, anticipated to reach $1 trillion in sales by 2018, as a part of an integrated system and means to improve the efficiency of all related logistics processes. Logistics companies (freight forwarders and express carriers) such as FedEx, UPS and DHL consider optimal packaging of a product as a critical factor in logistics. According to DHL, without optimal packaging, many logistics processes could not be performed at all or could be carried out only at great cost. The function of packaging is not simply protecting goods but also providing information about the contents as well as enabling and facilitating other interdependencies existing in the logistics processes –
including transport, handling, storage, order processing and warehousing. In distribution packaging, a compromise that addresses all functional areas must be identified as an optimal packaging system design can lower overall logistics costs and raise the level of supply and/or delivery service.

The MS in Industrial & Technology Studies underwent a degree title name change in 2008 to MS in Business & Technology (MSBT). Besides faculty driven research focus, MSBT was developed to also offer a focus on development of business-based decision tools with emphasis on technically-focused industrial processes and methods. Due to low enrollment, MSBT has remained suspended since 2008 and we seek to “rename” MSBT to MS in Packaging & Logistics (MSPL). While maintaining the original emphasis, the proposed name and curriculum update is intended to narrow the focus on to Packaging and Logistics education and research. This is intended to be accomplished through integration of several theoretical fields of knowledge towards accomplishing effective and sustainable utilization of resources, raw materials to end-of-life, throughout the supply chains. Research venues in the following fields will be explored: supply chain management, packaging technology & innovation, sustainable development, freight transports, retail logistics and supply chain traceability. Interdisciplinary collaborations in terms of curriculum and research will be sought with the current and proposed graduate programs at Cal Poly such as EMP, MBA, Data Analytics, Leadership, etc.

The OCOB has recruited a consultant to help identify the landscape of Packaging & Logistics as a discipline. Preliminary interviews with industry have been very optimistic, with a majority saying this program will be very valuable (8-9 or 10 on a 1-10 scale, 10 being extremely valuable). Drivers for such a program have been identified as international commerce, risk mitigation, tracking/supply chain security, sustainability & waste reduction, big data & new collaboration models, retail, hyperlocal, rising transportation costs, etc. Companies that may interested in recruiting graduates from such a program include International Paper, DuPont, Dow, Sealed Air, Heineken, Amazon, Boeing, Toyota, Tesla, FedEx, UPS, Google, Genco and DHL.

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