

# PRAC Presentation: Math, Sciences, and Business

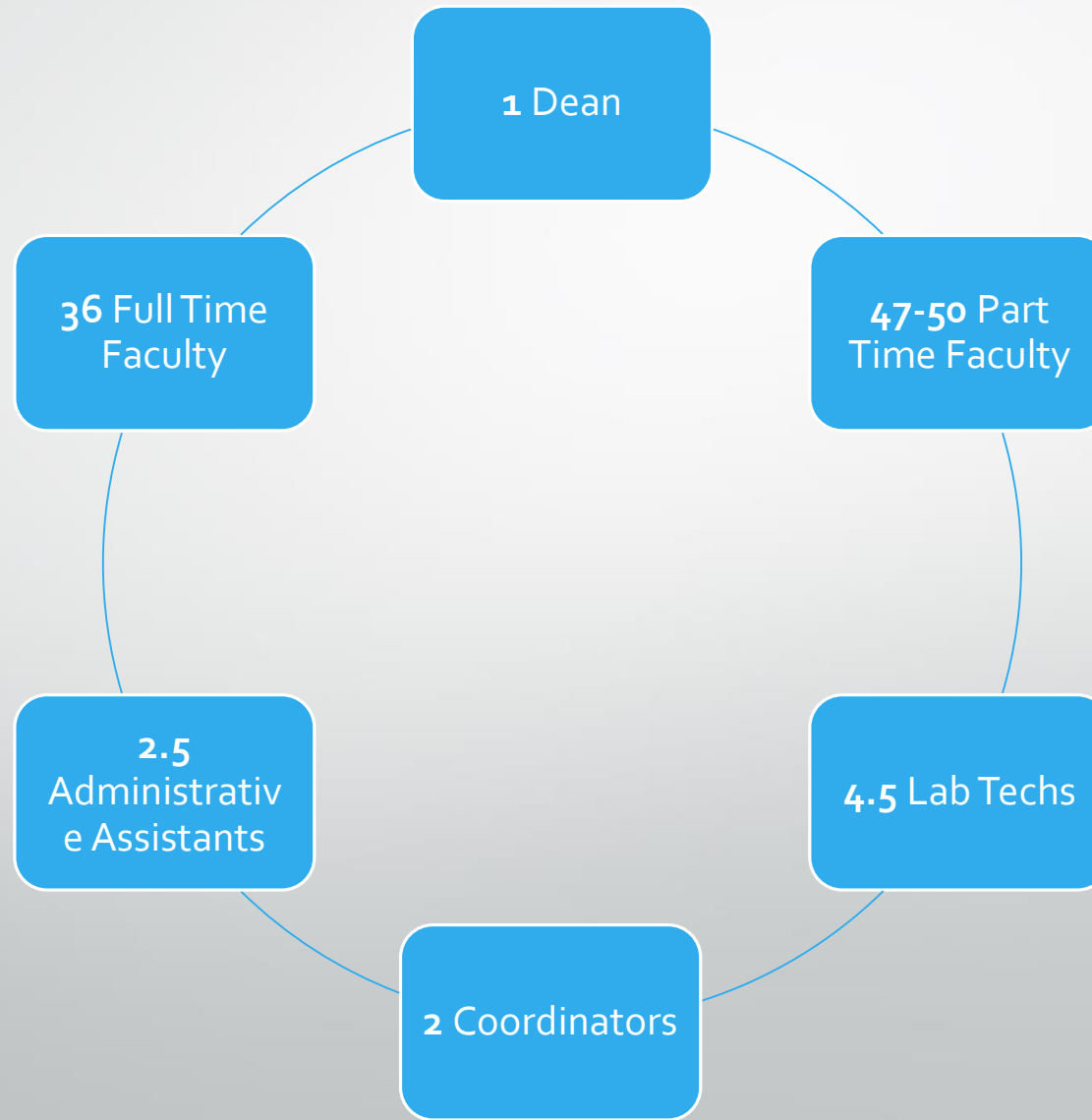
12/01/20

Carol Hernandez, Ed.D.

# College of Marin's Mission

- College of Marin's commitment to educational excellence is rooted in providing equitable opportunities and fostering success for all members of our diverse community by offering:
  - preparation for transfer to four-year colleges and universities
  - associate degrees and certificates
  - career technical education
  - basic skills improvement
  - English as a second language
  - lifelong learning
  - community and cultural enrichment
- College of Marin responds to community needs by offering student-centered programs and services in a supportive, innovative learning environment that promotes social and environmental responsibility.

# Math, Sciences, and Business



# Faculty and Personnel By Department

| Math  | Life and Earth Sciences   | Physical Sciences  | Social Sciences   | Behavioral Sciences   | Business   |
|---|---|--|---|---|--|
| <ul style="list-style-type: none"><li>• 9 Full Time</li><li>• 3 Part Time</li><li>• 1 Coordinator</li></ul> | <ul style="list-style-type: none"><li>• 8 Full Time</li><li>• 9 Part Time</li><li>• 2.5 Lab Techs</li></ul> | <ul style="list-style-type: none"><li>• 7 Full time</li><li>• 10 Part Time</li><li>• 2 Lab Techs</li><li>• 1 Coordinator</li></ul> | <ul style="list-style-type: none"><li>• 3 Full Time</li><li>• 9 Part Time</li></ul> | <ul style="list-style-type: none"><li>• 6 Full Time</li><li>• 4 Part Time</li></ul> | <ul style="list-style-type: none"><li>• 3 Full Time</li><li>• 12 Part Time</li></ul> |

# Departments and Programs

## Social Sciences

- Economics
- Ethnic Studies
- History
- Political Sciences

## Behavioral Sciences

- Anthropology
- Behavioral Sciences
- Psychology
- Sociology

## Physical Sciences

- Astronomy
- Chemistry
- Computer Sciences
- Engineering
- Physics

## Life & Earth Sciences

- Biology
- Geology
- Geography
- Environmental Sciences
- Natural History

## Mathematics

- Math

## Business

- Business
- Hospitality
- Real Estate

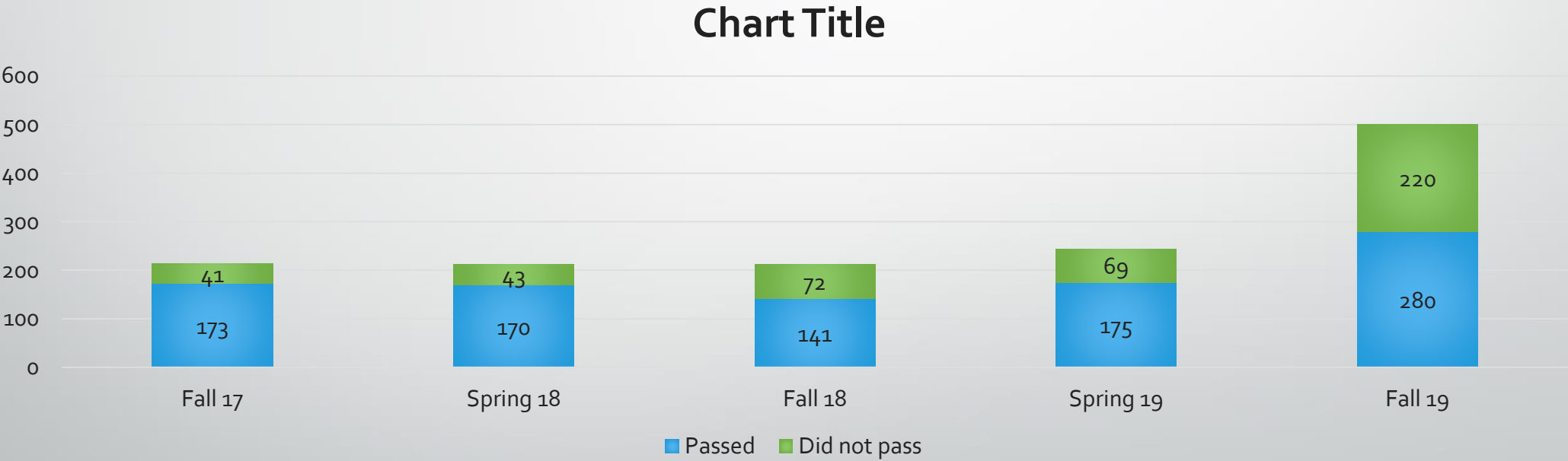
# Unduplicated Enrollment Headcount by Academic Year, Department and Subject

| Area                    | Subject                 | 2017-18 | 2018-19 | 2019-20 |
|-------------------------|-------------------------|---------|---------|---------|
| Physical Sciences       | ASTR                    | 198     | 191     | 176     |
|                         | CHEM                    | 403     | 417     | 421     |
|                         | COMP                    | 141     | 132     | 129     |
|                         | ENGG                    | 39      | 35      | 37      |
|                         | PHYS                    | 139     | 129     | 147     |
|                         | Department Unduplicated | 808     | 797     | 804     |
| Life and Earth Sciences | BIOL                    | 943     | 1,008   | 1,045   |
|                         | GEOG                    | 112     | 119     | 123     |
|                         | GEOL                    | 190     | 220     | 255     |
|                         | Department Unduplicated | 1,197   | 1,294   | 1,358   |
| Behavioral Sciences     | ANTH                    | 564     | 492     | 548     |
|                         | BEHS                    | 193     | 185     | 161     |
|                         | PSY                     | 937     | 987     | 1,052   |
|                         | SOC                     | 473     | 464     | 457     |
|                         | Department Unduplicated | 1,656   | 1,666   | 1,710   |
| Social Sciences         | ECON                    | 237     | 232     | 317     |
|                         | ETST                    | 270     | 295     | 331     |
|                         | HIST                    | 400     | 430     | 418     |
|                         | POLS                    | 238     | 294     | 275     |
|                         | Department Unduplicated | 966     | 1,069   | 1,152   |
| Business                | BUS                     | 544     | 570     | 597     |
|                         | HOSP                    |         | 14      | 53      |
|                         | REAL                    | 137     | 141     | 138     |
|                         | Department Unduplicated | 663     | 700     | 763     |
| Math                    | MATH                    | 1,857   | 1,655   | 1,456   |
|                         | STAT                    | 128     | 138     | 86      |
|                         | Department Unduplicated | 1,953   | 1,775   | 1,533   |
| Divison Unduplicated    |                         | 4,069   | 4,072   | 4,078   |

## Successful Course Completion by Academic Year, Department, and Subject

| Area                    | Subject          | 2017-18 | 2018-19 | 2019-20 |
|-------------------------|------------------|---------|---------|---------|
| Physical Sciences       | ASTR             | 73.8%   | 68.7%   | 71.8%   |
|                         | CHEM             | 79.9%   | 77.3%   | 77.9%   |
|                         | COMP             | 81.1%   | 75.3%   | 70.7%   |
|                         | ENGG             | 90.0%   | 83.6%   | 88.5%   |
|                         | PHYS             | 79.4%   | 76.8%   | 79.8%   |
|                         | Department Total | 79.2%   | 75.5%   | 76.4%   |
| Life and Earth Sciences | BIOL             | 73.4%   | 72.6%   | 72.6%   |
|                         | GEOG             | 74.2%   | 78.5%   | 74.3%   |
|                         | GEOL             | 73.7%   | 70.4%   | 73.9%   |
|                         | Department Total | 73.5%   | 72.8%   | 72.9%   |
| Behavioral Sciences     | ANTH             | 77.2%   | 76.7%   | 82.3%   |
|                         | BEHS             | 78.2%   | 77.5%   | 77.4%   |
|                         | PSY              | 73.3%   | 78.5%   | 77.5%   |
|                         | SOC              | 77.1%   | 79.5%   | 80.7%   |
|                         | Department Total | 75.6%   | 78.2%   | 79.4%   |
| Social Sciences         | ECON             | 77.9%   | 71.6%   | 79.4%   |
|                         | ETST             | 80.1%   | 87.5%   | 85.2%   |
|                         | HIST             | 76.8%   | 74.2%   | 75.7%   |
|                         | POLS             | 78.2%   | 76.4%   | 71.8%   |
|                         | Department Total | 78.1%   | 77.1%   | 77.9%   |
| Business                | BUS              | 77.4%   | 76.8%   | 80.2%   |
|                         | HOSP             |         | 50.0%   | 30.9%   |
|                         | REAL             | 72.1%   | 77.1%   | 75.6%   |
|                         | Department Total | 76.1%   | 76.5%   | 76.8%   |
| Math                    | MATH             | 56.9%   | 54.9%   | 61.3%   |
|                         | STAT             | 88.2%   | 81.7%   | 70.3%   |
|                         | Department Total | 58.9%   | 57.0%   | 61.7%   |
| Divison Unduplicated    |                  | 71.8%   | 71.9%   | 73.5%   |

# Throughput in Math 115 Courses





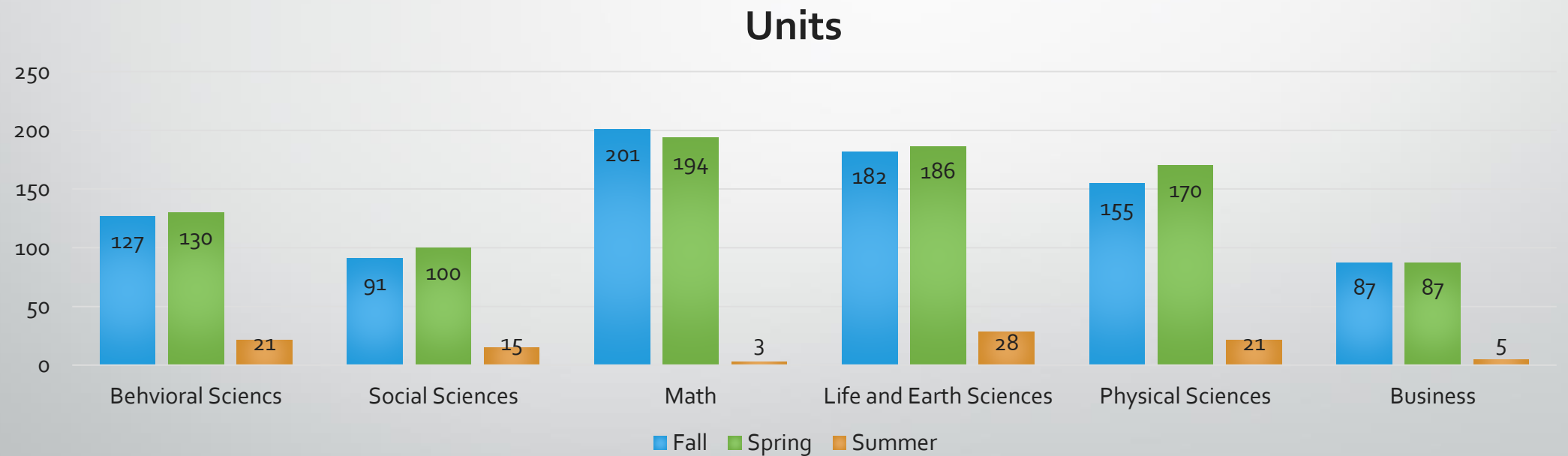
# Math and Science Degrees and Certificates Awarded by Academic Year, Department, and Subject

|                            | Degree Description            | Type | 2017-18    | 2018-19    | 2019-20    |
|----------------------------|-------------------------------|------|------------|------------|------------|
| <b>Physical Sciences</b>   | Computer Science              | AS   |            | 1          | 1          |
|                            | Physical Science              | AS   | 5          | 10         | 4          |
|                            | Physics Transfer              | AS-T | 1          | 1          | 2          |
| <b>Department Total</b>    |                               |      | <b>6</b>   | <b>12</b>  | <b>7</b>   |
| <b>Life/Earth Sciences</b> | Biology                       | AS   |            | 4          | 6          |
|                            | Geography Transfer            | AA-T |            | 1          |            |
|                            | Geology Transfer              | AS-T |            | 1          |            |
|                            | Liberal Arts: Natural Science | AA   | 33         | 47         | 63         |
|                            | Natural History               | CERT | 3          | 1          | 1          |
| <b>Department Total</b>    |                               |      | <b>36</b>  | <b>54</b>  | <b>70</b>  |
| <b>Behavioral Sciences</b> | Anthropology Transfer         | AA-T | 2          | 3          | 1          |
|                            | Psychology                    | AA-T | 24         | 33         | 36         |
|                            | Sociology                     | AA-T | 11         | 12         | 14         |
|                            | LA: Social & Behavioral Sc.   | AA   | 63         | 52         | 81         |
| <b>Department Total</b>    |                               |      | <b>100</b> | <b>100</b> | <b>132</b> |
| <b>Social Sciences</b>     | Economics Transfer            | AA-T | 8          | 8          | 6          |
|                            | History Transfer              | AA-T | 3          | 4          | 4          |
|                            | Political Science             | AA   |            | 1          |            |
|                            | Political Science AA-Transfer | AA-T | 9          | 11         | 7          |
| <b>Department Total</b>    |                               |      | <b>20</b>  | <b>24</b>  | <b>17</b>  |
| <b>Business</b>            | Business Admin Transfer       | AS-T | 45         | 41         | 26         |
|                            | Business, General             | AS   | 3          | 3          | 4          |
|                            | Real Estate                   | AS   | 4          | 2          | 5          |
|                            | Applied Accounting            | CERT | 7          | 3          | 8          |
| <b>Department Total</b>    |                               |      | <b>59</b>  | <b>49</b>  | <b>43</b>  |
| <b>Math</b>                | Mathematics Transfer          | AS-T | 2          | 5          | 3          |

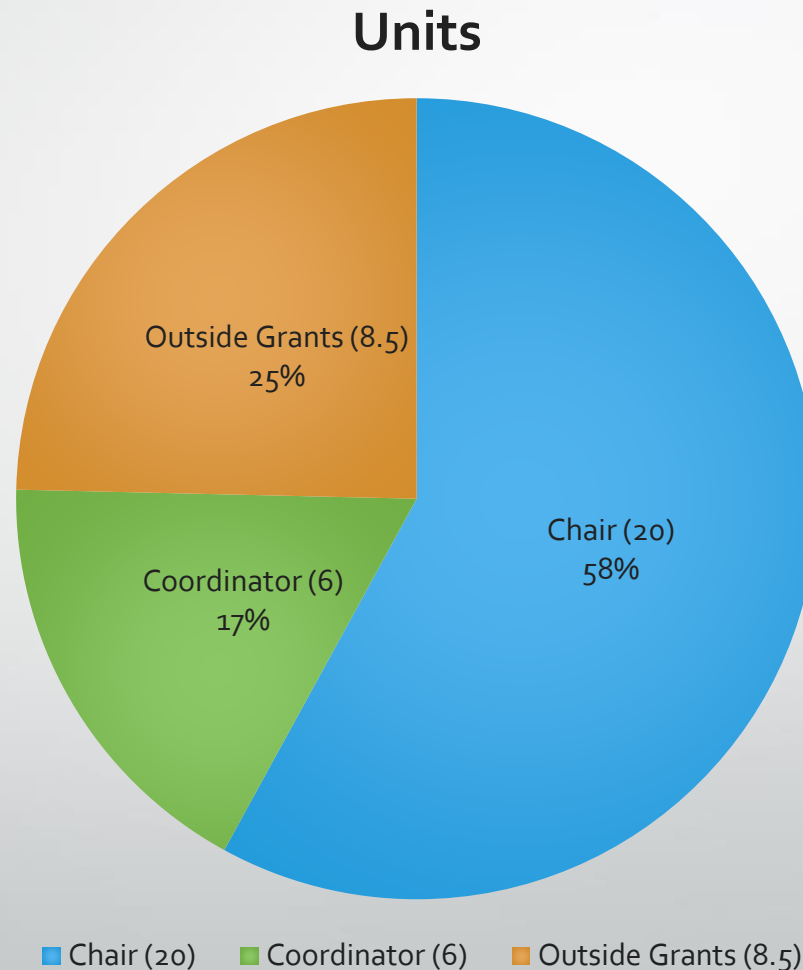
# Math and Science Transfers to 4-Year Institutions 2017-18 through 2019-20

| COM MAJOR                              | # of Transfers |
|--|----------------|
| PHYSICAL SCIENCE                       | 27             |
| PHYSICS                                | 8              |
| COMPUTER SCIENCE                       | 45             |
| <i>Department Total</i>                | <b>80</b>      |
| BIOLOGY                                | 93             |
| GEOGRAPHY                              | 3              |
| GEOLOGY                                | 2              |
| LIBERAL ARTS NATURAL SCIENCE           | 21             |
| <i>Department Total</i>                | <b>119</b>     |
| ANTHROPOLOGY                           | 12             |
| LIBERAL ARTS SOCIAL BEHAVIORAL SCIENCE | 28             |
| PSYCHOLOGY                             | 117            |
| SOCIOLOGY                              | 45             |
| <i>Department Total</i>                | <b>202</b>     |
| ECONOMICS                              | 32             |
| HISTORY TRANSFER                       | 11             |
| POLITICAL SCIENCE                      | 30             |
| <i>Department Total</i>                | <b>73</b>      |
| BUSINESS ADMINISTRATION                | 135            |
| REAL ESTATE                            | 4              |
| APPLIED ACCOUNTING                     | 3              |
| <i>Department Total</i>                | <b>142</b>     |
| MATHEMATICS                            | 29             |
| <b>Division Total</b>                  | <b>645</b>     |

# Instructional Units



# Non-Instructional Units Per Semester



# Budget (Fund 11100)

| Description                       | Business       | Social Sciences | Physical Sciences | Mathematics    | Life and Earth Sciences | Behavioral Sciences | All Division Budget |
|-----------------------------------|----------------|-----------------|-------------------|----------------|-------------------------|---------------------|---------------------|
| Permanent Academic Salaries       | \$353,364.00   | \$352,836.00    | \$785,946.00      | \$1,027,164.00 | \$933,656.00            | \$612,817.00        | \$4,232,723.00      |
| Permanent Classified Salaries     | \$121,975.00   | \$7,764.00      | \$136,557.00      | \$88,812.00    | \$164,587.00            | \$7,764.00          | \$652,728.00        |
| Benefits                          | \$238,795.00   | \$142,062.00    | \$396,553.00      | \$497,308.00   | \$449,933.00            | \$273,470.00        | \$2,138,469.00      |
| Total Non-discretionary           | \$714,134.00   | \$502,662.00    | \$1,319,056.00    | \$1,613,284.00 | \$1,548,176.00          | \$894,051.00        | \$7,023,920.00      |
| PT Faculty                        | \$592,100.00   | \$400,170.00    | \$530,971.00      | \$619,559.00   | \$565,812.00            | \$320,403.00        | \$3,029,015.00      |
| Classified Hourly                 | 0              | 0               | 0                 | \$18,460.00    | \$8,156.00              | 0                   | \$26,616.00         |
| Supplies                          | \$3,213.00     | \$1,000.00      | \$6,300.00        | \$549.00       | \$15,208.00             | \$2,000.00          | \$33,810.00         |
| Personal Services                 | 0              | 0               | 0                 | 0              | 0                       | \$400.00            | \$400.00            |
| Travel                            | \$1,500.00     | \$1,700.00      | 0                 | 0              | \$2,885.00              | 0                   | \$7,922.00          |
| Dues and Membership               | \$2,000.00     | 0               | 0                 | 0              | 0                       | 0                   | \$2,000.00          |
| Maintenance contract/repairs      | \$200.00       | 0               | 0                 | 0              | 0                       | 0                   | \$1,185.00          |
| Software License                  | \$1,000.00     | 0               | \$3,000.00        | 0              | 0                       | 0                   | \$4,000.00          |
| Other Contract Services           | \$5,526.00     | 0               | \$1,750.00        | 0              | \$20,676.00             | 0                   | \$27,952.00         |
| Postage                           | 0              | 0               | 0                 | 0              | 0                       | 0                   | \$0.00              |
| Furniture, Fixtures and Equipment | \$500.00       |                 | 0                 | 0              | 0                       | 0                   | \$500.00            |
| Total Discretionary               | \$606,039.00   | \$402,870.00    | \$542,021.00      | \$638,568.00   | \$612,737.00            | \$322,803.00        | \$3,133,400.00      |
| Total Budget                      | \$1,320,173.00 | \$905,532.00    | \$1,861,077.00    | \$2,251,852.00 | \$2,160,913.00          | \$1,216,854.00      | \$10,157,320.00     |

# Budget (Fund 12400)

| Description                         | Budget    |
|-------------------------------------|-----------|
| Supplies                            | 27885.05  |
| Rentals                             | 379.95    |
| Furnitures, Fixtures, and Equipment | 2,000.00  |
| Total Discretionary                 | 30,625.00 |
| Total Budget                        | 30,625.00 |

# Personnel Needs (next 3-5 years)

## Math

- 2 Retirements
- 2 FT Hires
- 1-2 Math IS

## Life and Earth Sciences

- 4 Retirement
- 4-5 FT Hires
- Every other year 4.5 units in Fall
- .5 Lab Tech to support Geography and Geology

## Physical Sciences

- 1 Chem Lab Tech

## Social Sciences

- Economics FT Hire
- ETST FT Hire
- AA

## Behavioral Sciences

- 1 Retirement
- 1 FT Hire
- AA

## Business

- 1 Retirement
- 1 FT Hire

# Connections with Educational Master Plan

## EMP FOCUS Area: Equity

- Ethnic Studies
- STEM Learning Community
- NASA MIRO6R
- California Space Grant Consortium
- San Quentin

## EMP Focus Area: Instructional Programs

- ACUE
- Learning Lab Grant
- Math Companion Courses

## EMP Focus Area: Student Access and Success

- Satellite Courses
- Sonoma State Partnerships
- Short term vocational classes scaffold
- BUS Skills Certificate





# Ethnic Studies

- New CSU requirement
- Supports building equity in curriculum
- Aligns and directly supports the UMOJA Equity Institute Outcomes
- Supports EMP Focus Area: **Equity**

# STEM Learning Community

- Over 120 faculty, staff and students participated in a STEM Center event in 2019-2020. This included regular office hours hosted by STEM faculty, study groups focused by discipline and monthly professional development meetings with faculty/staff. Students were also funded to complete summer research internships, work with faculty as embedded tutors and mentor incoming high school students
- Supports EMP Focus Areas **Equity** and **Instructional Programs**

# NASA MIRO6R Grant

- Recruit Physics/Engineering students interested in Engineering (Aerospace, Mechanical, Electrical)
- Working on an MOU that would outline a Transfer Agreement to UVI's engineering program. This will include a scholarship for COM students. UVI is a HBCU
- Provide students summer internships at UVI/NASA
- Mentorship for Students
- COM students will essentially receive transfer credits to complete a B.S. in Physics with a concentration in Engineering in 1 or 2 years after transferring. They will also receive a scholarship and guaranteed NASA internship once at UVI.
- Supports EMP Focus Areas **Equity**

# The Space Grant Consortium

- Receive funds (roughly \$750 per student) for a cohort of 4-5 students a year
- Create STEM-focus student club (Data-Science with focus in astronomy)
- Fund students to attend conferences
- Guaranteed NASA internship admission (funded by NASA or directly by the Consortium)
- Supports EMP Focus Areas **Equity**

# San Quentin

- Coordination between Behavioral Sciences and Business Departments to provide students the opportunity to participate in a guided experience at San Quentin.
- Opportunity links with specific assignment/curriculum for courses
- **EMP Equity Goal 3:** Given that Marin County's stark racial inequities are intertwined with the College's ability to achieve its mission, be a leader in promoting equity throughout the county.

# ACUE and TECH

- **4 Business faculty received a grant to take ACUE training to improve online learning delivery.** ACUE prepares, credentials, and supports faculty to teach with research-based best practices that improve student achievement and close equity gaps.
- **TECH:** Business faculty received 3-year grant to use digital badging for students for 21st century workforce skills (integrated into Canvas as of Nov 2020).
- **Instructional Programs EMP Goal 4:** Develop innovative offerings, scheduling, and delivery methods for student success and equity.

# Implementation of Guided Self-Placement

- Math completed a draft of the guided self-placement math tool, but it needs to be integrated into the COM's Placement materials and put on the webpage.
- **Instructional Programs EMP Goal 6:** Improve completion of transfer-level math and English courses within a one-year timeframe through changes to curriculum and teaching / learning practices.
- **Strategic Plan Objective IP6.1:** Given AB 705 implementation, maintain current success rate in gateway math and English courses with higher numbers of students.

# CA Education Learning Lab Grant

- Grant Title: Developing Students' Identity and Self-Perception as Capable STEM Thinkers and Learners
- The co-PIs meet weekly with a team of Bay Area Chemistry educators to develop curricular innovations, growth mindset resources, and concrete next steps for students at the introductory general chemistry level. Nguyen collaborates with Chemistry professors on producing short instructional videos that focus on specific Math skills that are foundational to learning introductory Chemistry. Daubenmire has been working to develop digital and in-person resources to support STEM students and faculty.
- **Strategic Plan Objective IP6.2:** Given AB 705 implementation, maintain current success rates in content courses which utilize English/Math skills.



# Math Companion Courses

- Provides extra support and in-time remediation for Math students in transfer level STEM math courses. In addition, the math department has started offering a companion course with MATH 103 Intermediate Algebra to increase success rates for students entering into STEM pathway courses.
- **Strategic Plan Objective IP6.2:** Given AB 705 implementation, maintain current success rates in content courses which utilize English/Math skills.

# Satellite Courses

- Business Department offers several courses in the local high school such as BUS 101, 121, and 163
- **Student Access and Success EMP Goal 1:** Reduce barriers to access and to students achieving their educational plan goals in a timely manner; create a welcoming atmosphere with increased human contact.

# Business Department

- REAL – focus on adult learners returning to workforce to get Real Estate license
- Partner - Sonoma State University: adult completion program - BS Business Admin
- Noncredit HOSP – short term vocational classes scaffold
- BUS Skills Certificates (Ecommerce & Social Media Marketing, Small Biz Jumpstart & Quickbooks)
- **Student Access and Success EMP Goal 2:** Increase enrollment of adult students—both credit and noncredit—who have not gone to college and need support; improve outreach strategies to all of Marin's adult populations.

# Grant: Integrating Liberal Arts Foundations in the Engineering Undergraduate Experience

- College of Marin is participating in a 3-year collaborative grant project funded by the Teagle Foundation and led by UCLA Engineering, that will develop a standardized and transferrable introductory engineering course to be designed and piloted at seven community college partners and subsequently made available to all of the California Community Colleges. The proposed course will emphasize the interplay of technology and social issues; expose students to hands-on engineering design projects that address societal needs; and leverage the design project component to promote student-to-student mentoring and development of leadership skills.

# Natural History

- Revised Curriculum
- 145 students declared Natural History a major 2019-2020
- Naturalists are one proven way to help solve the biodiversity crisis
- Field Courses and hands on experience and the connection to narrowing the equity gap
- 4.5 units every other year

# Other items

- Ice House Training Entrepreneurship <https://elimindset.com/> (Business)
- Service Learning (Behavioral Sciences)
- Model UN (Social Sciences)

# *Summary*

- ✓ **Main Takeaways**

- ✓ **What we do:** We offer various degrees, transfer pathways, and certificates

- ✓ **Top Priorities:**

- ✓ Increase the number of Degrees, Transfers, and Certificates

- ✓ Decrease time to degree and transfer

- ✓ Increase number of students advancing from pre-college level course to college level courses

- ✓ Increase support and opportunities for our underrepresented STEM students

- ✓ Build equity across our curriculum

- ✓ Continuing to strengthen our community and high school partnerships in an effort to create a stronger pipeline of diverse students.



# Questions/discussion

The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.

--Albert Einstein