



## Application to become an ARCS NCC Partner University

### Summary Information for the University and the Three Departments

#### I. University of California, Merced

##### a. Rankings

- Fastest university to achieve the prestigious Carnegie R2 research classification (No. 18); UCM is on track to reach Carnegie R1 classification--the classification obtained by our other UC partner universities.
- U.S. News and World Report Top 100 Universities for 2021
  - No. 38 among public universities
  - No. 93 among all national universities
  - No. 1 for public universities in Outperforming Expected Graduation Rates
  - No. 4 among all universities in social mobility—enrolling and graduating large numbers of economically disadvantaged students (those whose families adjusted gross income is under \$50,00 per year)
  - No. 8 for economic diversity
- Times Higher Education Young University Rankings
  - No. 3 in U.S. among universities younger than 50 years; note that Nos 1 & 2 (George Mason University and Rush University) both became independent in 1972 (and are about to “age out” of being “young” universities), whereas UCM was not established until 2005 and has risen to 3<sup>rd</sup> place in a short 16 years!
- Money Magazine
  - No. 76 (out of 769 schools) in Best Colleges rankings
  - No. 12 most transformative university—students surpassed expectations based on their economic and academic backgrounds. NB: No other UC school ranked as high in this category.

##### b. Other Important Takeaways

- First research university built in the US in the 21<sup>st</sup> Century

- Home to the following prominent STEM Institutes and Centers:
  - Sierra Nevada Research Institute
  - Health Sciences Research Center
  - Center for Information Technology Research in the Interest of Society
  - Advanced Solar Technologies Institute
  - UC Center for Climate Justice
- 28 NSF CAREER Awards--The Faculty Early Career Development (CAREER) Program is a NSF-wide activity that offers the National Science Foundation's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization.
- 73% of undergraduates and 48% of graduate students are first generation (the first in their families to attend college)
- UCM has a pipeline for STEM graduate students:
  - 52% of black and Hispanic undergraduates are STEM majors
  - 46% of women undergraduates are STEM majors
- 99% of undergrad students are from California
- 58% of undergrad students are Hispanic
- Approximately 1/3 of the graduate students are Hispanic or Asian/Pacific Islanders or African American (and approximately 1/4 white and remainder are international students).

**c. Financial Support and Philanthropy**

- The UC system has committed significant multi-year funding to sustain UCM's growth including providing the requisite faculty, staff and facilities for the increasing number of students
- Notwithstanding the fact that the State only funds about 14% of the University's entire budget, the State has pledged substantial resources to UCM.
- MacKenzie Scott and Dan Jewett gave 20 million dollars to UCM as part of their philanthropy to organizations in underserved areas significantly impacting social change, equity, leaders of color and economic mobility. UCM was the only UC school to be so honored.

## II. Department: Environmental Systems (School of Engineering)

a. **Overview**—ES focuses on understanding the earth as a whole from the atmosphere to the biosphere to the hydrosphere in order to address environmental consequences and develop sustainable solutions for providing food, energy and other basic services for the earth's growing population.

### b. **Research Areas**

- Water Resources and Climate
- Environmental and Ecological Engineering
- Sustainable Energy
- Biogeochemistry and Environmental Chemistry
- Ecology, Evolution and Biodiversity
- Conservation and Resource Management

### c. **Rankings**

- *USNWR*— (2021) No. 77; (School of Engineering in which the program resides is ranked No. 119)
- *College Factual*—No. 13 for US colleges most focused on Environmental Engineering

### d. **Statistical data**

- Date Founded--2004 (predating opening of campus; formed along with the Sierra Nevada Research Institute)
- Number of Ph.D. Students-(Fall 2020) 56
- Number of Full-time Faculty—35
- Ratio of Faculty to Students—1.6 graduate students per faculty member
- Average Years to Ph.D.—5.5 years<sup>1</sup>
- Percentage of Faculty with Grants from Major Granting Agencies—63%
- Publications in Prestigious Journals per Faculty-4.5 per year per member for last 2 years
- Total doctorates granted in the last 3 academic years—18

### III. Department: Physics (School of Natural Sciences)

a. **Overview**— The graduate physics program trains students to conduct and communicate independent research at the knowledge frontier to advance fundamental understanding of the world and to use physics to solve important problems.

b. **Research Areas**

- Physics of the atom
- Molecular and optical physics
- Condensed matter physics
- Biophysics,
- Soft-matter physics,
- Astrophysics and astronomy
- Nanophysics
- Energy science

c. **Rankings**

- *USNWR*— (2018) debuted ranking No. 146/no updated rankings since 2018
- *Times Higher Education Ranking*— (2020) No. 65 in Young Universities for Physics and Astronomy

d. **Statistical data**

- Date Founded—2014
- Number of Ph.D. Students-(Fall 2020) 65
- Number of Full-time Faculty--18
- Ratio of Faculty to Students—3.6 graduate students per faculty member  
Average Years to Ph.D.—5.8<sup>2</sup>
- Percentage of Faculty with Grants from Major Granting Agencies—83%
- Publications in Prestigious Journals per Faculty—3 per year for last 2 years
- Total doctorates granted in the last 3 academic years--23

IV. **Department: Cognitive and Information Sciences (School of Social Sciences, Humanities and Arts)**

a. **Overview**— The CIS Program is focused on the scientific study of mind, brain, and behavior using a range of experimental, observational, mathematical, and computational techniques. A central goal of Cognitive Science is to develop theories of cognitive function that help understand and explain human and animal behavior and also inform and interact with the fields of machine learning and artificial intelligence.

b. **Research Areas**

- The CIS PhD program trains students in cognitive science research with emphasis on computation and technology.
- Students learn to analyze intelligent behaviors as arising from interactions between brain, body, and environment, including social interactions situated in their economic and technological milieu.
- The CIS program places emphasis on computational approaches and applications towards developing technologies that foster and even aspire to emulate intelligent behavior.

c. **Rankings**

- *USNWR*-as Cognitive Sciences is a relatively new discipline, it, as of yet, has no national rankings. However, the program works extensively with psychology and computer science colleagues; those rankings are Psychology (2017) and Computer Engineering (2021) Nos. 90 and 106 respectively.
- *College Factual*—No. 3 for US colleges most focused on Cognitive Sciences
- Cognitive Science Society—300 universities around the world participate in this meeting where the acceptance rate for presentations is only 36%; UCM consistently ranks with the likes of Stanford and MIT for the greatest number of presentations accepted; this year a UCM graduate student won the top prize for her presentation; this is most prestigious student prize in the field.

a. **Statistical data**

- Date Founded--2010
- Number of Ph.D. Students--32
- Number of Full-time Faculty--18
- Ratio of Faculty to Students—2.1 graduate students per faculty, as there are 32 graduate students and 15 faculty members as primary advisors
- Average Years to Ph.D.-5.1<sup>3</sup>

- Percentage of Faculty with Grants from Major Granting Agencies—61%
- Publications in Prestigious Journals per Faculty—3.5 per year for the last 2 years
- Total doctorates granted in the last 3 academic years—12

<sup>1</sup> Note that 7- and 8-year non-completion rates are well below the national average

<sup>2</sup> Ditto

<sup>3</sup> Ditto