

UC Merced Gallo School Proposal Review

Comments by [REDACTED]

I have been asked by CCGA to provide comments on the UC Merced Gallo School Proposal. My comments follow.

(a) *Academic rigor*

All four departments currently have thriving academic programs. The proposed bachelor's degree in Data Science and Analytics promises to be academically rigorous. It could go even further to integrate the themes of the Gallo School into its curriculum.

The proposed one-year Master's in Data Science and Analytics also promises to be rigorous. It may be overpromising what the students can learn in one year, summer included. It proposes to provide "knowledge of machine learning, statistical inference, computational processes, geographic information systems, data management strategies, domain knowledge, ethics, and theory." Students will also "learn to carry out analyses of data through the full cycle of investigative processes in scientific and managerial contexts." And they will gain "deep appreciation of the human, social, and institutional structures and practices that shape technical work around computing and data, as well as an understanding of how data, data analytics, machine learning, artificial intelligence, and computing permeate and shape our individual and social lives." This is a laudable set of goals, but one year seems far too short to accomplish it. If students enter the program with the computational skills in place, the rest could be provided. Perhaps ask potential employers what they would keep and cut from the list.

(b) Need for the program – A proposal for a new school should demonstrate: 1) a clear societal need for professionals, researchers, faculty, or academics in the field; 2) student demand for the new school or college; and 3) why societal need and student demand are not fully met by existing UC units and programs. In addition, the proposal should: i) define how the school or college will address this unmet need/demand; ii) articulate how it would attract qualified, fully competitive students; and iii) provide projections of employment opportunities for graduates of the new school or college.

1. Need. The School has proposed an important and compelling theme for the school, which is to understand and improve the management of resources and institutions in nature and society, with a specific interest in understanding and designing complex human-natural systems. The first sentence under "Defining a Unique..." on page 11, provides more detail, saying the school will "combine aspects of cognition, decision-making, economics, politics, policy, and management, with technology and engineering, with information and data science, with environmental and sustainability science, and with equity, ethics and social justice, among other areas." This is a timely and important

purpose. Many of society's most important problems, including climate change, poverty, and loss/decline of species, require these elements to be addressed.

Additional management degree programs will help build the Central Valley/Sierras regional workforce.

2. Demand. I would expect students to be very interested in a school/program with the themes articulated for the Gallo School, especially with its professional development elements. Since the four existing Ph.D. programs are not changing, their historical enrollments should be an indicator of their future enrollments.
3. Other UC programs offer similar management/natural systems emphases (especially the Bren School), but the Gallo School also offers complex systems foci, data analytics, and regional interests in mountains, forests, and possibly agricultural systems (although agriculture isn't emphasized in the proposal). There is a drift in some interdisciplinary environmental programs away from applied research and teaching toward critical theory, so it is valuable to anchor the School as focusing on management.

It is difficult to generate projections of student demand due to covid, but one can expect existing enrollments in the departments to continue. I expect the proposed majors in data analytics will perform well, especially the undergraduate degree, and likely the MS should have solid demand. The degrees highlighted in #8 below (the Minor in Sustainability and Society, the BS in Systems, Sustainability, and Management, and the Master of Parks and Land Management) should also have strong enrollments.

(c) Fit within the UC system and/or other programs – The proposal should clearly articulate the fit of the school or college within the UC system and other public and private higher education programs in California. The proposal should stress how the new entity will fit within the overall academic profile of the campus—how it will enhance existing programs and how those programs will enhance the quality and development of the new school or college.

The program fits within the UC system because it draws upon cutting-edge research in complex human-natural systems to develop insights for system management, and translates those insights into curriculum for undergraduate and graduate programs. It connects with the state's interest in managing its prized but stressed multi-purpose natural resource systems, including forests, rivers, and agricultural lands. It is consistent with UC Merced's founding interdisciplinary theme that includes systems research. It could bring distinction to the departments that need to adapt the most to the School's themes (Political Science and Cognitive and Information Science), while the more natural fits, Management and Business Economics and the core department Management of Complex Systems, could also become leaders in both integrated research and curriculum.

Specific Discussion of Ph.D. plans

The four founding departments will bring their existing PhD programs into the School, as described on pp. 13 ff. in the proposal. Only one, the Ph.D. in the Management of Complex Systems, which is co-sponsored by the Department of Management of Complex Systems (MCS) and the Graduate Group in Management of Innovation, Sustainability, and Technology (MIST), currently aligns with the goals of the School. This is an exciting program that could produce thought leaders and future faculty who would address some of the world's most pressing problems and build future similar programs during their careers. The other three Ph.D. programs, while otherwise worthy, are not thematically aligned with the School, except to produce experts with disciplinary interests in economics, political science, and data sciences.

The Ph.D. programs are twice described as “distinct” in the proposal, which could be a signal that the Departments do not intend to adapt their existing Ph.D. programs to the new School. For example, the Economics PhD program began in 2021 and it is rather early to make changes to the curriculum.

However, this is an important opportunity that should not be missed. The Gallo School creates an opportunity to expand on the MCS/MIST Ph.D. program, and to build new avenues through the existing PhD programs that are consistent with the themes of the School. There could be two kinds of PhDs that would be distinctive to the School. One would be the flagship (in my opinion) MCS/MIST PhD. This program could expand academically to include more of the opportunities offered by the other three departments, as well UCM's natural and earth sciences strengths.

The other distinctive PhD could emerge from the three more disciplinary PhD programs. These would create pathways involving coursework, QE, committee composition, and dissertation requirements that connect them with the goals of the School. This should be a commitment all departments make and carry out to build a distinctive and important PhD programs as a School, since all faculty would be involved in the multidisciplinary committees. The School can incentivize this process through the awarding of integrative Chairs that, while housed in just one department, support cross-cutting interests consistent with the School's goals. Other incentives would be scholarships and dissertation awards for students who pursue these paths.

These suggestions are based on my belief that the goals and themes of the Gallo School are worthy ones and should be pursued to the extent possible. I hope, for example, that when future deans and chairs make difficult resource-allocation decisions they return to the founding themes of the school for guidance, for examples, the ones I quote under “need” above. There will be choices, for example, over whether to hire a new FTE with expertise aligned with the School, or needed by one of the three departments for their own curriculum. These will be challenging decisions that I hope will often favor the School. As such, there is currently just one PhD program (MCS/MIST) that aligns with the goals of the School.

Additional Observations: Nearly all of my additional comments take the form of discussing ways to achieve the important goals of the School.

1. It would be helpful if there were stronger links drawn between the existing degree programs that would be brought into the School and its theme. What will happen to the programs that have little to do with the theme, especially when scarce School resources are being allocated?
2. Every existing degree program in every department that will comprise the School is being carried forward into the School. Some have little to do with the goals and themes of the School. I expect that all faculty are already fully committed time-wise. How will the new activities of the School be added without something being removed?
3. The School will “align the mission of four established departments on globally and locally important issues.” One activity is described that could be seen as centrifugal: establishing the bachelor’s and Master’s in Data Sciences and Analytics. Many additional integrative activities are needed to transition from 4 separate departments to a School with a theme. These should be anticipated in the funding plan (e.g., substantial centralized funds to promote integrative activities, such as joint research projects; new Chairs) and in the selection of the first Dean, who should ideally be expert in and fully committed to the goals of the School.
4. Off-ramps are needed for faculty who do not see their future as part of the School. The philosophy faculty chose not to participate, for example. There will be faculty in some departments, for example Political Science, who do not see their future in the School. They should be given an alternative home on the campus. To keep all faculty from all departments means there will be otherwise-reasonable efforts to grow programs and offer courses that have nothing to do with the School’s goals and themes. This could impede the School’s efforts to build integrated multi-department programs.
5. The surprising drop in enrollment in the Masters of Management program over the past three years should be carefully reviewed - why did it happen and what can be done to reverse this trend? Better advertising and recruiting? Scholarships? Better job placement? Revised curriculum? Is this a covid-related aberration?
6. While some new management schools eschew the traditional MBA degree, established programs still offer it, students still enroll in it, and employers still recruit from it. The Gallo School should consider offering an MBA consistent with its theme.
7. A risk with allowing fully-formed, existing programs to unite to form a school, and then introducing cross-cutting degree programs, is that no one will want to “own” the cross-cutting program. Nor will departments want to commit faculty teaching slots to courses that are peripheral to their own majors. The highly popular Technology and Information Management BS at UC Santa Cruz provides a warning. It is a program that is popular

with students, allows the Baskin School of Engineering to retain enrollments, but that no department wants to run or contribute to. There should be pre-School-formation negotiations and commitments made as to what each department's commitments will be to School-wide programs.

8. The most exciting ideas in the proposal are the “next 10 years” “may” happen degree programs, including the **Minor in Sustainability and Society**, the **BS in Systems, Sustainability, and Management**, the **Master of Parks and Land Management** (which should also include data analytics), and possibly the Master of Engineering Management, although without the traditional engineering disciplines on campus, this would be a challenge to mount. The other programs, including the flagship Master's and BS in Data Sciences and Analytics feel more like single-department programs, and need further integration with the Gallo School's goals and themes. The three programs in bold font above should be prioritized, especially the BSSM and MPLM.
9. The Department of Management of Complex Systems appears to be at the core of the School. A question is how to integrate the activities of the other departments into the complex systems program. Currently all four departments and all their programs are entering on equal footing even though many are not thematically associated with the School. There is a risk that the core, on-point, thematic programs will be outvoted or otherwise outcompeted for resources by the more numerous, less-aligned programs.
10. Faculty recruitment plans for the four participating departments should take into account their new placement. Research interests that align with the School's themes should be prioritized.
11. Equity and economic, social, and environmental justice are noted as important themes for the School. Its discussion could be extended to how this theme will influence research programs and choice of curriculum, as well as the areas covered (recruitment, student resources).
12. Will the four departments be physically co-located? This would help immensely in building connections among faculty and students.