



Academic Senate

EXECUTIVE COUNCIL

August 24, 2021

To: Riverside Division

From: Jason Stajich, Chair

Re: Transfer of the Cell, Molecular, and Developmental Biology (CMDB) Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

During their August 23, 2021 meeting Executive Council discussed the subject item and had no additional comments or objections.

From: [Elizabeth Watkins](#)
To: [Cherysa P Cortez](#)
Cc: "[Jason Stajich](#)"; [Rosana Franco](#)
Subject: Re: Proposed transfer of the Cell, Molecular, and Developmental Biology (CMDDB) Programs to the Department of Molecular, Cell and Systems Biology (MCSB).
Date: Monday, August 9, 2021 3:34:04 PM

Dear Cherysa,

Thank you for the opportunity to read this proposal to move the CMDDB programs into the MCSB Department. There seems to be widespread support for this proposal, and I have no additional comments, questions, or concerns.

Sincerely,

Liz

Elizabeth Watkins, PhD (she/her/hers)
Provost and Executive Vice Chancellor
Professor of History
University of California, Riverside

4148 Hinderaker Hall
Riverside, CA 92521

Executive assistant:
Erin Schuster
Erin.schuster@ucr.edu

From: Cherysa P Cortez <cherysa.cortez@ucr.edu>
Date: Friday, July 9, 2021 at 10:27 AM
To: Elizabeth Watkins <elizabeth.watkins@ucr.edu>
Cc: 'Jason Stajich' <jason.stajich@ucr.edu>, Rosana Franco <rosana.franco@ucr.edu>
Subject: Proposed transfer of the Cell, Molecular, and Developmental Biology (CMDDB) Programs to the Department of Molecular, Cell and Systems Biology (MCSB).

Proposed transfer of the Cell, Molecular, and Developmental Biology (CMDDB) Graduate Program and the CMDDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

Good Morning Provost Watkins,

Per UCR Bylaw Appendix 7*, campus administration is to now review and provide comments regarding the attached subject proposal that will be included in the further review consideration by the Academic Senate.

Included are the proposal, report of the Special Review Committee, and the response memos from the Committees on Educational Policy, Academic Personnel, Planning & Budget, Diversity, Equity, & Inclusion, Faculty Welfare, and the Graduate Council.

Please provide your comments regarding the proposal by August 10, 2021. Should you have questions, please contact me.

Many thanks – Cherysa

* Appendix 7 states that *Executive Vice Chancellor shall submit the report of the Special Committee to his/her Student Committee on Budget and Academic Planning for its review and recommendation*. Per former PEVC C. Larive, no such student committee exists. Therefore, while the Appendix is under revision, the Administration has requested, and the Academic Senate is allowing a standing exception to this portion of the Appendix.

Cherysa Cortez

Executive Director, Academic Senate

University Office Building 221

[951.827.6154](tel:951.827.6154) | cherysac@ucr.edu

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From: [Cherysa P Cortez](#)
To: [Elizabeth Watkins](#)
Cc: "[Jason Stajich](#)"; [Rosana Franco](#)
Subject: Proposed transfer of the Cell, Molecular, and Developmental Biology (CMDB) Programs to the Department of Molecular, Cell and Systems Biology (MCSB).
Date: Friday, July 9, 2021 10:27:00 AM
Attachments: [20-21.JStoEWreCMDBTransfers.6.29.21.pdf](#)

Proposed transfer of the Cell, Molecular, and Developmental Biology (CMDB) Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

Good Morning Provost Watkins,

Per UCR Bylaw Appendix 7*, campus administration is to now review and provide comments regarding the attached subject proposal that will be included in the further review consideration by the Academic Senate.

Included are the proposal, report of the Special Review Committee, and the response memos from the Committees on Educational Policy, Academic Personnel, Planning & Budget, Diversity, Equity, & Inclusion, Faculty Welfare, and the Graduate Council.

Please provide your comments regarding the proposal by August 10, 2021. Should you have questions, please contact me.

Many thanks – Cherysa

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Cherysa Cortez
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Academic Senate

June 29, 2021

To: Elizabeth Watkins
Provost & Executive Vice Chancellor

From: Jason Stajich
Chair, Riverside Division

CC: Manuela Martins-Green
Chair, Molecular, Cell and Systems Biology (MCSB)

RE: **Transfer of the Cell, Molecular, and Developmental Biology (CMDB) Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)**

Dear Liz,

Attached are the documents related to the proposed transfer of the *Cell, Molecular, and Developmental Biology (CMDB) Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)*.

Per UCR Bylaw Appendix 7¹, campus administration is to now review and provide comments regarding the proposal that will be included in the further review consideration by the Academic Senate.

Included are the proposal, report of the Special Review Committee, and the response memos from the Committees on Educational Policy, Academic Personnel, Planning & Budget, Diversity, Equity, & Inclusion, Faculty Welfare, and the Graduate Council.

Please provide your comments regarding the proposal by August 10, 2021. Should you have questions, please contact Academic Senate Executive Director Cherysa Cortez.

Sincerely,
/s/ Jason

¹ Appendix 7 states that *Executive Vice Chancellor shall submit the report of the Special Committee to his/her Student Committee on Budget and Academic Planning for its review and recommendation*. Per former PEVC C. Larive, no such student committee exists. Therefore, while the Appendix is under revision, the Administration has requested, and the Academic Senate is allowing a standing exception to this portion of the Appendix.

December 8th, 2020

To: Jason Stajich, Academic Senate Chair

From: Manuela Martins-Green, MCSB Chair 

Re: Transfer of Undergraduate Program from the CMDB Interdepartmental Major to the MCSB Department

On March 3, 2020, the faculty of the MCSB Department voted to transfer the “CMDB Undergraduate Interdepartmental Major” to the MCSB department.

In its current interdepartmental state, the commitment of faculty to the major is virtually non-existent resulting in the Major not being effective in graduating its students (see letters of support for the transfer). The faculty in the MCSB department, except for one member, are in favor of the transfer. The faculty who belong to the major and are not in the MCSB Department by enlarge agree that this transfer is a good one. Furthermore, *the Dean has asked for the transfer that is being requested here and the Executive Committee of CNAS is in support of the transfer.*

The transfer will ensure the program is managed efficiently and effectively by the MCSB Department in accordance with its intended purpose. It should be noted that there will be **no changes** to the Major as it will retain with its current interdisciplinary curriculum for now. This is a **transfer only** to be under the MCSB Administrative Unit.

Based on current models on campus, the transfer of the undergraduate major would have minimal budgetary impact on MCSB as the majority of expenses would be covered by course material fee revenue from students enrolled in our courses. Additional internships can also be funded by federal and state funds MCSB faculty has been awarded. The transfer of the undergraduate program is an important component to the long-term success of MCSB as an academic enterprise.

December 8th, 2020

To: Jason Stajich, Academic Senate Chair

From: Manuela Martins-Green, MCSB Chair

Re: Transfer of the CMDDB Interdepartmental Undergraduate Program from being Interdepartmental to being housed in the MCSB Department

We received your email on May 19, 2020 from then Senate Chair Dylan Rodriguez requesting that written support be submitted in accordance with Academic Senate Appendix 7:

“The proposal requires formal memos (or other indications) demonstrating consultation with, and the advice of the faculty, the students, the Chairperson of the program and/or the Chairperson of the academic unit in which the program is housed, the Executive Committee, and the Dean of the college, are to be included before the proposal can be routed for Academic Senate review.”

In response to your email, we are writing to you with a revised request that includes a proposal for **transfer only** (no request for changes) of the Interdepartmental CMDDB Undergraduate Program to the Molecular, Cell and Systems Biology Department. We also include the following letters/memos in support of the transfer:

- Louis Santiago, Chair, CNAS Executive Committee
- Kathryn Uhrich, Dean, CNAS
- Morris Maduro, Director, CMDDB Graduate Program
- Howard Judelson, Prior Director, CMDDB Graduate Program

In addition to the formal written memos, we are including the following supporting documentation:

- MCSB Faculty Vote – we have included a screenshot of the Meeting Minutes where the faculty in the MCSB department, except for one member, are in favor of the transfer.

Thank you kindly for your review and consideration of this transfer.

Proposal to Request the Transfer of the CMDDB Interdepartmental Undergraduate Program to the Molecular, Cell and Systems Biology Department

I. Introduction

On March 3, 2020, the faculty of the MCSB Department voted to transfer the “CMDDB Interdepartmental Undergraduate Major” to the MCSB department. The transfer will ensure the program is managed efficiently and effectively by the MCSB Department in accordance with its intended purpose. It should be noted that ***there will be no changes to the Major, as it will be transferred without changes in its current curriculum.***

II. History of the CMDDB Undergraduate Program

The Interdepartmental Cell, Molecular and Developmental Biology Undergraduate Major has been in existence at UCR for some 15 years. It was formed in response to an external evaluation of the life sciences majors at UCR, to address a need to attract undergraduates into a program that examined biological problems at the cell/molecular level. The major has grown to several hundreds of students and in recent years has been among the top four majors in the college, behind Neuroscience, Biology and Biochemistry.

As the campus and the students themselves have changed over the years, an ongoing challenge with the interdepartmental major has been finding faculty to steer the major and to volunteer for recruitment activities. There are no undergraduate courses with the CMDDB name; the major draws its course requirements from among courses already offered in other programs. What is needed is a core group of faculty willing to invest time in mentoring the CMDDB majors in their careers.

In the recent Annual Undergraduate Program-Level Student Outcomes Assessment Report AY 2019-20 for the Interdepartmental CMDDB Undergraduate Program the director of the program Prof. Maduro writes about “making CMDDB a departmental major. As of early 2020, CMDDB is the 4th-largest life sciences major with about 250 students, behind Neurosciences (350), Biochemistry (650) and Biology (1600). The Department of Molecular, Cell and Systems Biology has expressed an interest in housing the major. Advantages include having a core group of faculty who can mentor the students and shape the major for the 21st century by helping to restructure the curriculum and make a capstone course. With an interdepartmental structure, considerations for teaching, hiring, course development and appointment of faculty advisors have been challenging. With a departmental structure, the MCSB Department hopes to change the program for the better in the future. In parallel, MCSB is also seeking to house the interdepartmental CMDDB *Graduate* Program. There are potential synergies that could arise from this.”

III. Current Administration of the Interdepartmental Program

In its current interdepartmental state, the commitment of faculty to the major is virtually non-existent resulting in the major not being effective in graduating its students. Please see the letter from Prof. Judelson in the attachment.

IV. Proposed Administration of the Program by MCSB

The faculty in the MCSB department, except for one member, are in favor of the transfer. The faculty who belong to the major and are not in the MCSB Department by and large agree that this transfer is an appropriate move. Furthermore, the Dean is supportive of the transfer of the major to the MCSB department.

Based on current models on campus, the transfer of the undergraduate major would have minimal budgetary impact on MCSB, as the majority of expenses would be covered by course material fee revenue from students. Additional internships can also be funded by federal and state funds that the MCSB faculty have been awarded. The transfer of the undergraduate program is an important component to the long-term success of MCSB as an academic enterprise.

V. The proposed action herein will introduce no changes to existing program framework, and specifically listed as follows:

- a. Student Advising
- b. Student Success Programs
- c. Internship Program
- d. Seminar Series
- e. Student Ambassador Program
- f. Curriculum
- g. Faculty and Staff
- h. Impact to CMDB Program
- i. Financial Impact
- j. Closing

VI. List of MCSB Faculty

1. Michael Adams, Professor
2. Garret Anderson, Assistant Professor
3. Jeffrey Bachant, Associate Professor
4. Jun-Hyeong Cho, Assistant Professor
5. Margarita Curras-Collazo, Associate Professor
6. Scott Currie, Associate Professor
7. Anupama Dahanukar, Associate Professor
8. David Eastmond, Emeriti Professor
9. Todd Fiacco, Associate Professor
10. Sarjeet Gill, Distinguished Professor
11. Weifeng Gu, Assistant Professor
12. Sachiko Haga-Yamanaka, Assistant Professor
13. Fedor "Ted" Karginov, Assistant Professor
14. Karine Le Roch, Professor
15. Morris Maduro, Professor
16. Manuela Martins-Green, Professor and Chair
17. Dmitri Maslov, Professor and Vice Chair
18. Connie Nugent, Associate Professor

19. Anandasankar Ray, Professor
20. Martin Riccomagno, Assistant Professor
21. Vijayalakshmi Santhakumar, Associate Professor
22. Frances Sladek, Professor & Life Sciences Dean
23. Glenn B. Stanley, Professor
24. Prue Talbot, Professor
25. Hongdian Yang, Assistant Professor
26. Raphael Zidovetzki, Professor
27. Nicole zur Nieden, Associate Professor

VII. List of EMN Administration Staff

1. Michelle Blas, Financial Analyst
2. Mia Carino, MCSB Chair's Assistant
3. Heather Constable, Administrative Officer 3
4. Estella Davalos, Administrative Officer
5. Tara Pastucha, Procurement Supervisor 1
6. Silvana Payne, Administrative Assistant 3
7. Katrina Preciado, Administrative Assistant 3
8. Maggie Tello, Financial Services Analyst
9. Sherice Underwood, Administrative Manager 1
10. Guille Vallejo, Financial Operations Manager



June 10, 2020


To: Manuela Martins-Green, Chair, MCSB

From: Louis Santiago, Chair, Executive Committee
College of Natural and Agricultural Science

A handwritten signature in blue ink that reads "Louis Santiago".

Re: Transfer of CMDB Interdepartmental Undergraduate program to MCSB

The CNAS Executive Committee reviewed the proposals to transfer the Cellular, Molecular, and Developmental Biology (CMDB) Interdepartmental Undergraduate program to the Department of Molecular, Cellular and Systems Biology (MCSB). There was unanimous support for this move and a general opinion that this move makes sense.

TO: Dylan Rodriguez, Chair of the Academic Senate, Riverside Division
FROM: Kathryn Uhrich, Dean, CNAS 
DATE: June 4, 2020
RE: Transfer of Interdepartmental CMDDB Undergraduate Program to
the Department of MCSB

I am pleased to submit the attached letter from the faculty of the Department of Molecular, Systems and Cellular Biology (MCSB) approving the transfer of the Interdepartmental CMDDB Undergraduate Program to their Department and renaming it the MCSB Undergraduate Major. The proposed transfer was approved by a department vote on May 3, 2020 (16 in favor, 1 opposed, 0 abstain).

As outlined in the Department's letter, the transfer allows for revisions to be made to the major and to also gain wider faculty support. I am fully supportive of the transfer as it will result in a more viable, relevant program. Therefore, I request that campus approves the formal transfer as requested above.

Please let me know if you need any additional information.

May 25, 2020

Manuela Martins-Green, Professor and Chair
Department of Molecular, Cell and Systems Biology
UCR

Dear Manuela:

You have asked me to share my thoughts about why the undergraduate major in Cell, Molecular, and Developmental Biology (CMDDB) might succeed better as a departmental major as opposed to an interdepartmental major. I led the committee that established the major and, for about six years, I served as Director and Lead Faculty advisor.

First, some history. About ten years ago, a rather negative external review of life science majors at UCR recommended that they be reinvented as interdepartmental majors. The Dean's office subsequently initiated a program to follow that recommendation. I led the committee to establish a new major, CMDDB. Efforts to form other interdepartmental majors, including changing departmental majors to interdepartmental majors, were mostly unsuccessful.

The CMDDB major has turned out to be popular with students. According to the latest SIR data, there will be 185 new CMDDB majors next Fall. However, there are challenges with having an interdepartmental major which detract from the student experience, as listed below:

1. An interdepartmental major can not assign teaching. As an interdepartmental major, CMDDB relies on classes offered through departments. Two required courses distinguish CMDDB from other life science majors: CBNS 101 (Cell Biology) and CBSN 108 (Developmental Biology). CBNS 108 is only offered once a year. Its enrollments are typically very large: 196 students in the past year. To allow students to graduate in a timely manner, the course needs to be offered more often. Also, 196 students is too much for an upper-division course. CBNS 101 is offered all three quarters, with high enrollments: 249, 138, and 230 students over the past years.

Ideally, these classes would be offered more often or with additional sections. However, the CMDDB director can not assign teaching, nor can it ask for new faculty positions to help teach the course. The MCSB (and formerly CBNS) chairs have been sympathetic to the needs of CMDDB, but this has not been translated into sufficient action.

2. It is difficult for an interdepartmental major to develop new classes. Many faculty associated with CMDDB would like to see the major improved through additional course offerings, in particular a capstone course. However, it is hard to convince faculty to develop a new course that is not closely associated with their department.

3. Faculty participation is a challenge. I often thought about having student receptions at the beginning of the year, or before graduation. This would improve student spirit, identification with UCR and the major, and mentoring. Developing

these ideas was challenged by not having any budget from the college and by being uncertain if enough faculty would participate. I often got volunteers from other departments to help with activities such as Highlander Day, for example from Botany/Plant Science, Entomology, and MCSB/CBNS. However this was not always easy as faculty in those departments have loyalties to other majors.

In theory, an interdepartmental major poses many advantages such as increased opportunities for multidisciplinary training by students. If more majors were interdepartmental, I am confident that solutions to most of the above problems could be found. It is my understanding that when the push towards interdepartmental majors occurred it was envisioned that teaching assignments for many courses would be made cooperatively between departments, as is now done with the Biol5 series and Biol107A through the CNAS "Life Sciences Council of Chairs." If this activity is not expanded, it will be tough going for an CMDB interdepartmental major. The problem could be solved if CMDB is absorbed into the MCSB department, if MCSB commits to aligning its teaching more with CMDB.

I note that another interdepartmental undergraduate major, Microbiology, started at the same time as CMDB. This major appears to be successful as shown by its ability to expand its course offerings and recruit increasing numbers of students. Although being interdepartmental, most of the participating faculty (including the course instructors) are housed in a single department, Microbiology and Plant Pathology. That department's chair has also used departmental funds to help support the Microbiology program.

If the current faculty in the CMDB major were polled, I would not expect many to object to it becoming departmental (if they respond at all).


Regards,

A handwritten signature in black ink, appearing to read "Howard S. Judelson", with a long horizontal flourish extending to the right.

Howard S. Judelson
Professor of Plant Pathology

Date: May 26, 2020

To: Prof. Manuela Martins-Green, Chair, MCSB Department

From:  Morris F. Maduro, Professor of Biology and
Lead Faculty Advisor for the CMDDB Undergraduate Major

Subject: Moving of CMDDB undergraduate major to the MCSB Department

Dear Manuela,

The undergraduate Cell, Molecular and Developmental Biology undergraduate major has been in existence at UCR for some 15 years. It was formed in response to an external evaluation of the life sciences programs at UCR, to address a need to attract undergraduates into a program that examined biological problems at the cell/molecular level. The major has grown to several hundreds of students and in recent years has been among the top three majors in the college, behind Biology and Biochemistry.

As the campus, undergraduate programs, and the students themselves have changed over the years, an ongoing challenge with the major has been finding faculty to steer the major and to volunteer for recruitment activities. There are no undergraduate courses with the CMDDB name; it draws its course requirements from among courses already offered. What is needed are specialty preparatory classes, a capstone experience, and a core group of faculty willing to invest time in mentoring these majors in their careers.

A departmental home would help with these issues. The MCSB department does not have its own undergraduate major and has expressed a willingness to house the CMDDB major. There are good justifications for such a proposed move. Many of the faculty teach in courses required for the major and have undergraduates in this major in their laboratories. Having a department chair able to assign teaching and course development will allow the program to experience ongoing critical review and updating, which have suffered under the interdepartmental structure of the major. As a model for how well a major can do under departmental leadership, the Microbiology major, run by the department of Microbiology and Plant Pathology, has a series of specialty upper-division courses and programs specifically for their students and a well-structured major.

As Lead Faculty Advisor of the program and an ongoing participant in its administration since its inception, I believe it is time for serious consideration of a move of the CMDDB undergraduate major to the MCSB department.

- Gill proposed that we bring the program into the department. to determine if we want the program to become departmental. and be moved to our department as a departmental program. Stanley seconded. 16 in favor, 1 opposed, 0 abstain. (Nugent, Talbot, Adams didn't vote).

January 8, 2021

To: Jason Stajich, Academic Senate Chair

From: Manuela Martins-Green, MCSB Ch: 

Re: Transfer of Graduate Program from CMDB to MCSB

We received your email on May 19, 2020 from then Senate Chair, Dylan Rodriguez, requesting that written support be submitted in accordance with Academic Senate Appendix 7:

“The proposal requires formal memos (or other indications) demonstrating consultation with, and the advice of the faculty, the students, the Chairperson of the program and/or the Chairperson of the academic unit in which the program is housed, the Executive Committee, the Dean of the college, and the Graduate Dean are to be included before the proposal can be routed for Academic Senate review.”

In response to that email, we are writing to you with a revised request that includes a proposal for **transfer only** (no request for changes) of the Interdepartmental CMDB Graduate Program to the Molecular, Cell and Systems Biology Department. We also include the following letters/memos in support of the transfer.

- Louis Santiago, Chair, CNAS Executive Committee
- Kathryn Uhrich, Dean, CNAS
- Shaun Bowler, Dean, Graduate Division
- Peter Atkinson, Prior Director, CMDB Graduate Program
- Morris Maduro, Director, CMDB Graduate Program

In addition to the formal written memos, we are including the following supporting documentation:

- Survey Results – 31 faculty outside of MCSB (+ Executive Committee), out of 63 emailed, who filled out the survey. As you can see there is strong support with a few faculty that abstained or felt there was not enough information to decide. The vast majority thought the move made sense and that CFM was a good mechanism to keep involvement of faculty outside MCSB.
- CMDB Graduate Program, Self-Study, Program Evaluation 2020-2021 Academic Year, written by current program director, Prof. Morris Maduro in October, 2020
- MCSB Faculty Vote – we have included a screenshot of the Meeting Minutes where the faculty in the MCSB department, except for one member, are in favor of the transfer.

Thank you for your review and consideration of this **transfer only**.

January 7th, 2021

To: Jason Stajich, Academic Senate Chair

From: Manuela Martins-Green, MCSB Chair 

Re: Transfer of Interdepartmental CMDB Graduate Program to the MCSB Department

On March 3, 2020, the faculty of the MCSB Department voted to **transfer** the “Interdepartmental CMDB Graduate Program” to the MCSB department.

In its current interdepartmental state, the commitment of faculty to the major is diminished resulting in the Graduate Program not being effective in graduating PhD students effectively (see letters of support for the transfer). The faculty in the MCSB department, except for one member, are in favor of the transfer. The faculty who belong to the Graduate program and are not in the MCSB Department by enlarge agree that this transfer is a good one. Furthermore, *the Dean has asked for the transfer that is being requested here and the Executive Committee of CNAS is in support of the transfer.*

The transfer will ensure the program is managed efficiently and effectively by the MCSB Department in accordance with its intended purpose. It should be noted that there will be **no changes** to the Graduate Program until the recommendations we are given by the review committee who is currently reviewing the program (see supporting document on Self-Study • Program Evaluation 2020-2021 Academic Year). This is a **transfer only** to be under the MCSB Administrative Unit.

Based on current models on campus, the transfer of the graduate major would have minimal budgetary impact on MCSB as the majority of the cost of this program is funded by CNAS. Additional internships can also be funded by federal and state funds MCSB faculty has been awarded. The transfer of the graduate program is an important component to the long-term success of MCSB as an academic enterprise.

Proposal to Request the Transfer of the Interdepartmental CMDB Graduate Program to the Molecular, Cell and Systems Biology Department

I. Introduction

On March 3, 2020, the faculty of the MCSB Department voted to transfer the “Interdepartmental CMDB Graduate Program” to the MCSB department. The transfer will ensure the program is managed efficiently and effectively by the MCSB Department in accordance with its intended purpose. It should be noted that ***there will be no changes to the Program, as it will be transferred without changes in its current curriculum.***

II. History of the CMDB Graduate Program

The Interdepartmental Cell, Molecular and Developmental Biology Graduate Program has been in existence at UCR for some 20 years. It was formed in response to recognizing the need for faculty across the college with a common interest in understanding biological phenomena at the cellular/molecular level to be able to recruit students separately from their own departmental programs. Since the last review, the total number of students in the Interdepartmental CMDB Program has remained consistent, with an average of 39 students (~1 MS student per year, the rest PhD) and a range of 32-46.

As the campus and the students themselves have changed over the years, an ongoing challenge with the interdepartmental program, has been finding faculty to steer the program and to volunteer for recruitment activities. The program has not been able to divert resources towards making more competitive application packages to top students. One reason is that most add-ons to the packages offered to the student come from the UC system, so students receiving such offers through the Interdepartmental CMDB Graduate program would also receive them from a competing program. (See page 8, section ‘Financial packages’ of the CMDB Self-Study submitted to the program review committee by Director Maduro. For added convenience, the section has been pasted below).

“Financial packages. When admitted, students are given a five-year financial package that includes the first three quarters of Graduate Student Research (GSR) support from the campus, in the form of two quarters from the Graduate Division, and one quarter from CNAS. The third quarter of support comes from a yearly ~\$100K allocation from CNAS to the CMDB program, a significant portion of which covers the GSRs. The summer before the second year, and the second through fifth years, are promised to the students in the form of GSRs from faculty grants and Teaching Assistantships (TAs), and these are contingent upon students finding a lab in which to complete their research by the end of their third quarter. There are additional add-ons from the Graduate Division (e.g. Dean's Distinguished Fellowship) and the UC system, including the Eugene Cota-Robles award (ECRA; \$24K supplement). These can be either supplemented into part of the first year of support, or in recent years, we have

used them as a way to fund some students over their first summer and subsequent quarters, depending on the size of the award. We do not have the means to provide housing allowances or increase stipend offers for particularly strong applications, hence we lose many good domestic applicants to competing programs at nearby institutions, such as UC Irvine.

The annual allocation from CNAS has been approximately \$1M across 10 life sciences programs, both inter-departmental and departmental. To meet budget targets, the college will be reducing support to these programs in a phased reduction to 50% for 2020-21 and 2021-22, to no support for 2022-23. Without the allocation from CNAS, the program will be forced to change how it structures the offers to students. Among considerations are to restrict students to two-quarter rotations, rely on students earning competitive fellowships, impose TAs for the third quarter, or abolish the rotation system in favor of matching students to labs before they arrive at UCR. It is not clear what effect such changes would have on the size of the program.”

If the program is to be more competitive, it may be through better connecting labs to students in advance of arrival to the campus, providing applicants with more certainty about their graduate experience and a personal connection to attract them to UCR. It would also allow faculty who have research grants to increase offers of financial support to a prospective applicant. What is needed is a core group of faculty willing to invest time in mentoring the CMDB graduate students that lead to successful careers. (See page 12, section ‘Improving graduate recruitment’ of the CMDB Self-Study submitted to the program review committee by Director Maduro. For added convenience, the section has been pasted below).

“Improving graduate recruitment. The external review noted that most of the entering CMDB students are not in the top quartile but the next quartile down (50th-75th percentile). Over the past 10 years we have continued to attract the same applicants as we always have, 60th percentile by average GRE score. The program has not been able to divert resources towards making more competitive application packages to top students. One reason is that most add-ons are through the UC system, so students receiving such offers through CMDB would also receive them from a competing program. If we are to be more competitive, it may be through better connecting labs to students in advance of arrival to the campus, providing applicants with more certainty about their graduate experience and a personal connection to attract them to UCR. It would also allow faculty who have research grants to increase offers of financial support to a prospective applicant. The program director (Maduro) recently signed on with an NIH-funded Bridges to the Doctorate program in conjunction with several local Cal State campuses, including Cal State Northridge (CSUN). It is not clear how this participation will help recruit better students to CMDB in the long run; many of our applicants already come from CSU campuses as BS or MS students.

The review team also recommended better filtering out of applicants with low motivation for pursuing graduate school, because these tend to leave the program or take exceptionally long to complete their degrees. In recent years, the admissions committee has put in extra effort to offer admission to the best prepared and motivated students, through Skype/Zoom interviews, personal interviews during campus visits, and contacting letter writers.

In 2010 the external review team cited data that 4/21 (19%) of graduated students had not published a paper before they graduated. For our 2020 report, we find that this situation is possibly worse, with 8/26 (31%) respondents reporting no publications with their major professor.

Hence, despite our best efforts, we have not been able to make significant inroads in attracting top-notch applicants, improving time to graduation, and improving metrics of scholarly productivity. An almost two-fold reduction in the number of applications to the program since 2014 suggests that the profile of the program is lower, however CMDB remains among the largest three graduate programs in the life sciences at UCR, and there has been a decline in applications to many programs at UCR, not just CMDB.”

Further, in the same CMDB Self-Study for the Interdepartmental CMDB Graduate Program, the Director of the program, Prof. Morris Maduro, writes about “making CMDB a departmental program.” The Department of Molecular, Cell and Systems Biology has the most number of faculty who belong to the program and has expressed an interest in housing the major. With an interdepartmental structure, considerations for teaching, hiring, course development and appointment of faculty advisors have been challenging. With a departmental structure, the MCSB Department would provide the sustained governance and administration to insure the success in line with the program’s vision statement. In parallel, MCSB is also seeking to house the interdepartmental CMDB Undergraduate Program. There are potential synergies that could arise from this action.

III. Current Administration of the Interdepartmental Program

In its current interdepartmental state, the organization of the program is not sustainable with respect to recruitment, retention, graduation and the quality and quantity of research seminars and symposia that are core to the success of graduate programs. Please see the attached letters from the current Director of the Interdepartmental CMDB Graduate Program and the former Divisional Dean of Life Sciences, Prof. Peter W. Atkinson.

IV. Proposed Administration of the Program by MCSB

The faculty in the MCSB department, except for one member, are in favor of the transfer. The faculty who belong to the Interdepartmental CMDB Graduate program and are not in the MCSB Department, by and large agree that this transfer is an good and appropriate move. Furthermore, the Executive Committee of the College and the CNAS Dean are supportive of the transfer of the program to the MCSB department. Based on current models on campus, the transfer of the Interdepartmental CMDB graduate

program would have minimal budgetary impact on MCSB, as the majority of the cost of this program is funded by CNAS. Additional internships can also be funded by federal and state funds MCSB faculty has been awarded. The transfer of the graduate program is an important component to the long-term success of MCSB as an academic enterprise.

V. Proposed Action

The proposed action herein is for a *transfer only* of Interdepartmental CMDB Graduate program to the MCSB department. Changes will only be introduced in the program if and when the review committee currently reviewing the program makes requests for changes. We will then follow the rules outlined by the Senate for such changes.

VI. List of MCSB Faculty

1. Michael Adams, Professor
2. Garret Anderson, Assistant Professor
3. Jeffrey Bachant, Associate Professor
4. Jun-Hyeong Cho, Assistant Professor
5. Margarita Curras-Collazo, Associate Professor
6. Scott Currie, Associate Professor
7. Anupama Dahanukar, Associate Professor
8. David Eastmond, Emeriti Professor
9. Todd Fiacco, Associate Professor
10. Sarjeet Gill, Distinguished Professor
11. Weifeng Gu, Assistant Professor
12. Sachiko Haga-Yamanaka, Assistant Professor
13. Fedor "Ted" Karginov, Assistant Professor
14. Karine Le Roch, Professor
15. Morris Maduro, Professor
16. Manuela Martins-Green, Professor and Chair
17. Dmitri Maslov, Professor and Vice Chair
18. Connie Nugent, Associate Professor
19. Anandasankar Ray, Professor
20. Martin Riccomagno, Assistant Professor
21. Vijayalakshmi Santhakumar, Associate Professor
22. Frances Sladek, Professor & Life Sciences Dean
23. Glenn B. Stanley, Professor
24. Prue Talbot, Professor
25. Hongdian Yang, Assistant Professor
26. Raphael Zidovetzki, Professor
27. Nicole zur Nieden, Associate Professor

VII. List of EMN Administration Staff

1. Michelle Blas, Financial Analyst
2. Mia Carino, MCSB Chair's Assistant
3. Heather Constable, Administrative Officer 3
4. Estella Davalos, Administrative Officer

5. Tara Pastucha, Procurement Supervisor 1
6. Silvana Payne, Administrative Assistant 3
7. Katrina Preciado, Administrative Assistant 3
8. Maggie Tello, Financial Services Analyst
9. Sherice Underwood, Administrative Manager 1
10. Guille Vallejo, Financial Operations Manager



June 10, 2020


To: Manuela Martins-Green, Chair, MCSB

From: Louis Santiago, Chair, Executive Committee
College of Natural and Agricultural Science

A handwritten signature in black ink that reads "Louis Santiago".

Re: Transfer of CMDB Interdepartmental Graduate program to MCSB

The CNAS Executive Committee reviewed the proposals to transfer the Cellular, Molecular, and Developmental Biology (CMDB) Interdepartmental Graduate program to the Department of Molecular, Cellular and Systems Biology (MCSB). There was unanimous support for this move and a general opinion that this move makes sense.

TO: Dylan Rodriguez, Chair of the Academic Senate, Riverside Division
FROM: Kathryn Uhrich, Dean, CNAS 
DATE: June 4, 2020
RE: Transfer of CMDB Interdepartmental Graduate Program to the
Department of MCSB

I am pleased to submit the attached letter from the faculty of the Department of Molecular, Systems and Cellular Biology (MCSB) approving the transfer of the CMDB Interdepartmental Graduate Program to their Department. The proposed transfer was approved by a department vote on May 3, 2020 (19 favor, 1 opposed, 0 abstained).

As outlined in the Department's letter, the transfer allows for better alignment with the Department and will not change the structure of the program. I am fully supportive of the transfer particularly as it aligns with the academic mission of the Department. Therefore, I request that campus approves the formal transfer as requested above.

Please let me know if you need any additional information.

Cc: Manuela Martins-Green, Chair, MCSB

June 11, 2020

To: Manuela Martins-Green, MCSB Chair

From: Shaun Bowler, Dean, Graduate Division



Re: Transfer of CMDDB Interdepartmental Graduate Program to MCSB

By this note I am expressing my support for the proposal to transfer the CMDDB graduate program to the Department of MCSB.

This move should help ensure more stable support for graduate students in the program. Inter-department programs (IDPs) can struggle to find support for students in part because the programs themselves do not seem to have access to sources of funding. For example, IDPS rarely directly control TA allocations while departments have more direct control and can therefore help direct TAs to support students.

Moving the IDP to be within a departmental unit will better align the responsibility for supporting graduate students with an organizational structure that has the means to provide that support. In consequence, I expect there to be more consistent financial support for graduate students in the CMDDB program.

Part of the appeal of IDPs lies their inter-disciplinarity. Inter-disciplinarity reflects the intellectual interests of faculty and students alike. In discussion the department has indicated it will be mindful of preserving that inter-disciplinary quality.

In sum, I support the transfer of CMDDB to MCSB.

June 15, 2020

Dr. Manuela Martins-Green
Chair, Department of the Department of Molecular, Cell and Systems Biology
University of California
Riverside, CA

Dear Manuela,

I write in unequivocal support of the transfer of the Interdepartmental Graduate Program in Cell, Molecular and Developmental Biology (CMDB) to become a Departmental Graduate Program in Cell, Molecular and Developmental Biology within the Department of Molecular, Cell and Systems Biology (MCSB). I write with some experience of the matter. I was Director of the CMDB program for some five years after which I was Divisional Dean of Life Sciences in the College for five years where I had some responsibility for the graduate programs in the life sciences. This experience provided me with strong views about the fiscal, organizational and academic survival of the CNAS interdepartmental programs and CMDB in particular which I shared with the program directors, relevant chairs, relevant faculty and my colleagues in the CNAS Deans Office at the time.

Let there be no doubt of my position. The current organization of the interdepartmental CMDB graduate program is not sustainable. It is not sustainable fiscally since neither the college nor Graduate Division provides them sufficient funds to operate independent of a department. This affects recruitment, retention, graduation and the quality and quantity of research seminars and symposia which are core to the success of graduate programs. It is not sustainable academically since there is less incentive and reward for faculty to participate in leadership positions and committee membership in a graduate program beyond their home departments. These problems are chronic and they have not been solved. Why it matters that they are solved, is that programs such as CMDB are broad and encompass fields of modern biology that are at the core of any leading public or private Tier 1 research university in the United States. They are taxon-independent and bring the same cutting-edge tools of molecular, cell and developmental biology to a range of organisms that all members of the program, students and faculty, share in. In other universities programs such as CMDB are central to the success of the relevant department, division or college. At UCR it has struggled for survival. This is completely inappropriate for any UC life sciences college

The MCSB department (formerly the Cell Biology and Neuroscience Department) lacks a dedicated graduate program that it alone runs. It does co-administer the Neuroscience Graduate Program with CHASS but this program captures only a fraction of the MCSB faculty. Given the scholastic teaching and research foci of the department, it is the natural departmental home of the CMDB graduate program. Not only would this transfer provide the much needed faculty buy-in to administer the program, but would also enable the department and the program to grow together to provide a sound, secure and growing home for the teaching and research of cell biology, developmental biology and molecular biology within CNAS.

This would not come at the expense of similar research in the taxon-based departments in CNAS whose graduate programs enjoy national and international acclaim. It would not come at the expense of faculty outside of the MCSB department which would provide membership in the program through Cooperating Faculty Membership which serves departments such as Entomology and Botany & Plant Sciences very well.

This transfer is overdue. I have heard well intended and sincere arguments to the contrary for many years from fellow faculty earnestly concerned with CMDB's stability and future. I respect them all, but my own experience leads me to conclude the current organization is unsustainable and that transfer to the MCSB department will enable both entities to grow to meet the future desires of our faculty and students.

I'm more than pleased to discuss.


Most sincerely yours,



Peter W. Atkinson
Professor of Genetics
Department of Entomology
UC Riverside

Date: June 3, 2020

To: Prof. Manuela Martins-Green, Chair, MCSB Department

From:  Morris F. Maduro, Professor of Biology and Director of CMDDB Graduate Program

Subject: Moving of CMDDB graduate program to the MCSB Department

Dear Manuela,

The interdepartmental Cell, Molecular and Development Graduate Program has been in existence at UCR for 20 years. At the time it was formed, it addressed a critical need for investigators across multiple departments to recruit graduate students through a program that appealed to those interested in the study of biological problems at the cell/molecular level. The program received wide support and in a short time amassed many participating faculty members and a group of PhD students of about 50 at its highest. As the campus, graduate programs, and methods for scientific inquiry have changed over the years, an ongoing challenge with the interdepartmental programs including CMDDB has been finding faculty to serve on leadership positions, teach in the courses, and attend the seminar series.

A departmental home could re-invigorate the CMDDB program with a smaller group of committed core faculty, strengthened by CFMs outside of this core. The MCSB department does not have its own graduate program and has expressed a willingness to house CMDDB if the program wishes to consider it. There are good justifications for such a proposed move: Its disciplinary name overlaps that of CMDDB; half the CMDDB students are housed in MCSB labs; four of the CMDDB exec including its director and associate director are in MCSB; and MCSB faculty currently teach a majority portion of the CMDDB 201, 200, 202 and 203 courses.

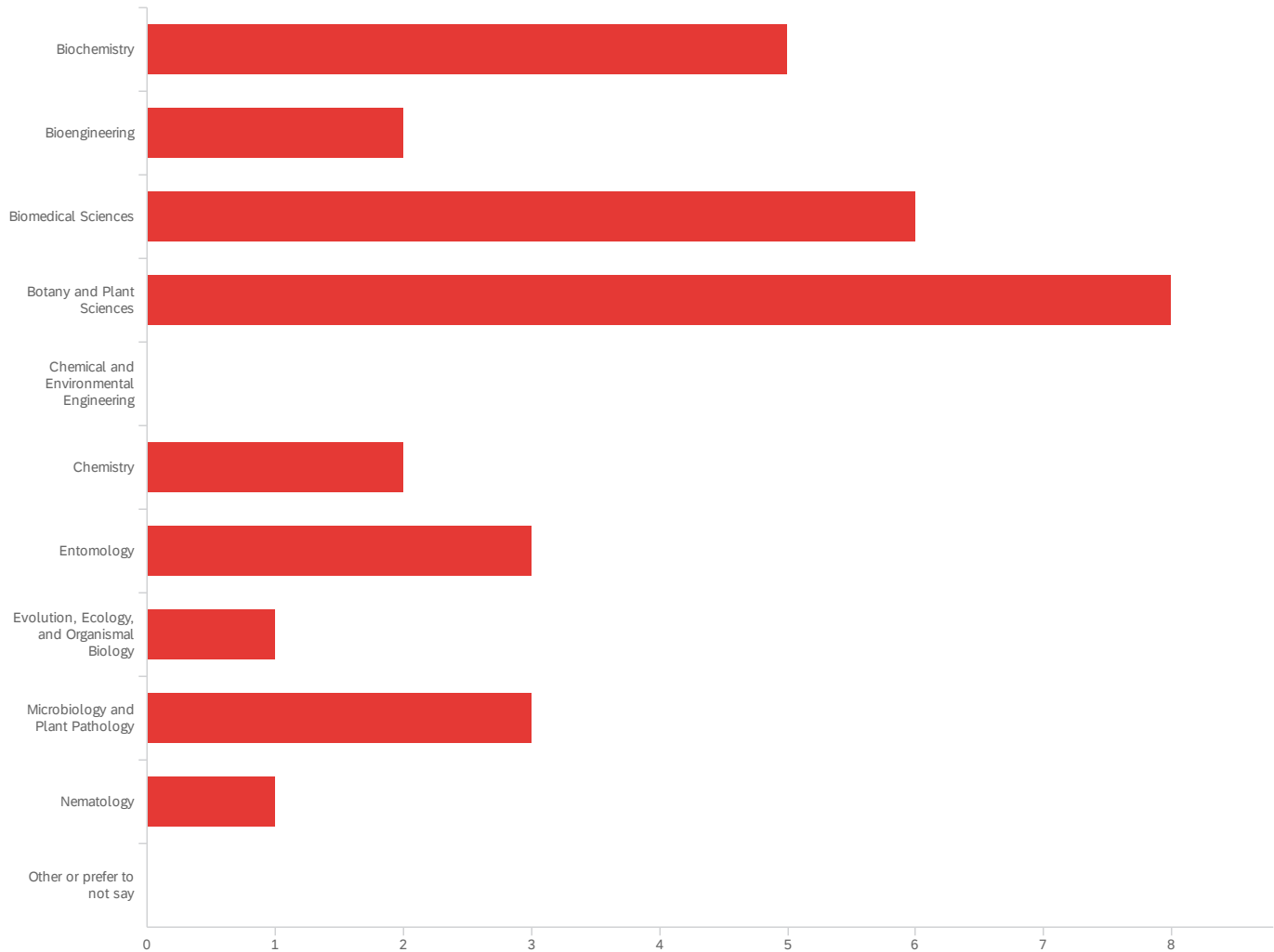
As Director of the program for the last several years, I believe the time for serious consideration of a move of the CMDDB graduate program to the MCSB department is at hand. On 6/3/2020 the Executive Committee of CMDDB held a meeting and discussed this issue at length. The unanimous decision was that we proceed with bringing the CMDDB program under the MCSB Department. I propose that as part of the scheduled upcoming external review of the program for the 2020-2021 year, that we ask for recommendations and guidance from the reviewers and Graduate Council for the future of the program.

Default Report

CMDB survey

June 18, 2020 11:45 AM MDT

Q1 - Department home:



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Department home: - Selected Choice	1.00	10.00	4.42	2.64	6.95	31

#	Field	Choice Count
1	Biochemistry	16.13% 5
2	Bioengineering	6.45% 2

#	Field	Choice Count
3	Biomedical Sciences	19.35% 6
4	Botany and Plant Sciences	25.81% 8
5	Chemical and Environmental Engineering	0.00% 0
6	Chemistry	6.45% 2
7	Entomology	9.68% 3
8	Evolution, Ecology, and Organismal Biology	3.23% 1
9	Microbiology and Plant Pathology	9.68% 3
10	Nematology	3.23% 1
11	Other or prefer to not say	0.00% 0
		31

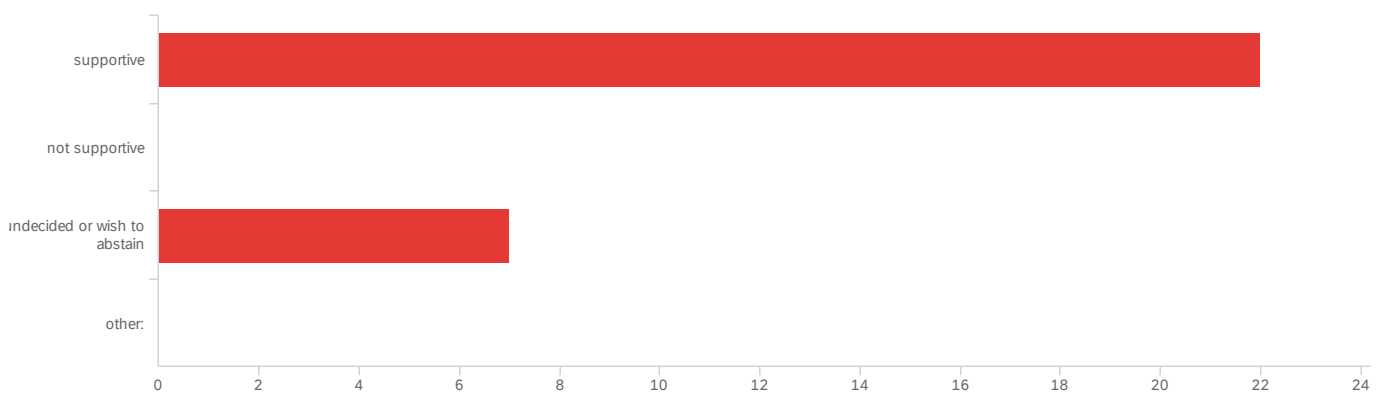
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Q1_11_TEXT - Other or prefer to not say

Other or prefer to not say

Q2 - Regarding moving the Cell, Molecular and Developmental Biology (CMDB) Program

into the Department of Molecular, Cell and Systems Biology (MCSB), I am:



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Regarding moving the Cell, Molecular and Developmental Biology (CMDB) Program into the Department of Molecular, Cell and Systems Biology (MCSB), I am: - Selected Choice	1.00	3.00	1.48	0.86	0.73	29

#	Field	Choice Count
1	supportive	75.86% 22
2	not supportive	0.00% 0
3	undecided or wish to abstain	24.14% 7
4	other:	0.00% 0

29

Showing rows 1 - 5 of 5

Q2_4_TEXT - other:

other:

Q4 - Comments about the proposal to move the program into MCSB:

Comments about the proposal to move the program into MCSB:

I am supportive because of the long term lack of a campus approach to support this and the GGB program.

I think this is a great idea. This will help better shaping the identify of this program. If within a department, it may be better taken care of. I think many participating faculty members have not identified themselves very much with the interdepartmental CMDDB program.

The various interdepartmental programs at UCR played an important role in the various fields of molecular biology, but for the past decade (at least) have been unnecessary. They have become redundant and costly with respect to faculty time and effort. Thus, I strongly favor the merger of CMDDB with MCSB

If this move only changes administrative structure, I am supportive.

I really have no strong opiion

Completely in support. Long overdue. The MCSB biology is the ideal home and will bring ownership and stability to the program.

I think it is a great idea, a no-brainer, actually.

It makes sense especially given the lack of support for interdepartmental programs.

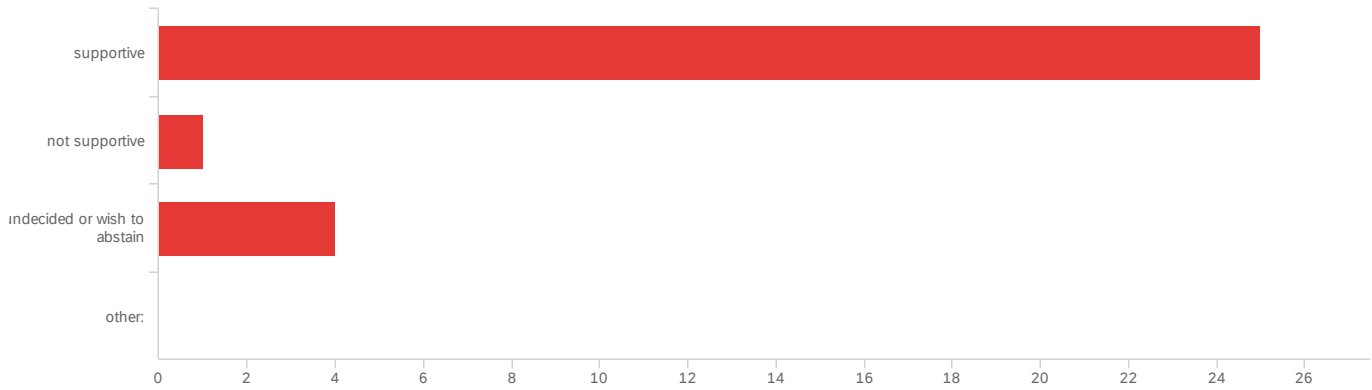
It is not clear whether this improves resources for the program, or whether it is more likely to improve standards

I only hope this change will not affect my PhD student that are currently in the CMDDB program. I'll surely be happy to contribute to the new program as non-MCSB faculty in ways possible.

It seems like a very positive step, and it would likely be beneficial to both graduate students and faculty

Q3 - The MCSB Department is planning to automatically add CMDB participating faculty

(outside the department) as Cooperating Faculty Members (CFMs) in MCSB. I am:



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	The MCSB Department is planning to automatically add CMDB participating faculty (outside the department) as Cooperating Faculty Members (CFMs) in MCSB. I am: - Selected Choice	1.00	3.00	1.30	0.69	0.48	30

#	Field	Choice Count
1	supportive	83.33% 25
2	not supportive	3.33% 1
3	undecided or wish to abstain	13.33% 4
4	other:	0.00% 0

30

Showing rows 1 - 5 of 5

Q3_4_TEXT - other:

other:

Q5 - Comments about inclusion of faculty as CFMs:

Comments about inclusion of faculty as CFMs:

I suggest that there be a mechanisms in the recruitment process that ensures that CFM participate in recruitment, curriculum, and all other key aspects of the program that will keep the bridges down to ensure this remains "interdepartmental". This will be challenging unless things like interdepartmental committee composition are a part of the proram by-laws.

I would very much like to be a CFM

Fine

that makes sense - thoughtful

I would like to continue to support CMDDB students, including my own. If CFM status is the best way to do that I am supportive.

This would appear essential if the move is to take place.

The CFMs will have less incentive to participate in teaching, and also will likely have no say in the standards of the program

Supportive

I think it would be of benefit to the program as a whole to have faculty as CFMs

Q6 - Any other comments about the CMDB program:

Any other comments about the CMDB program:

Thank you - Good Bye

any thoughts about combining GGB with CMDB?

The program has great students. Identifying and implementing mechanisms that ensure continued strong support for them through ongoing and possible future financial challenges should be a key driving force for structural changes to CMDB.

This is a great idea.

There is no information on how this move would benefit the program, nor the risks. The program does have problem with student standards, faculty participation, but how would this help?

End of Report

CMDB Graduate Program, UC Riverside

Self-Study • Program Evaluation 2020-2021 Academic Year

October, 2020

A. Process

This document was prepared by the Program Director (Maduro) using data prepared by UCR's Academic Senate, the Graduate Student Academic Support Center (GSAC), and additional Qualtrics surveys. Executive Committee members were given the opportunity to suggest improvements.

B. Vision Statement and Overview

The mission of the Graduate Program in Cell, Molecular and Developmental Biology (CMDB) is to prepare students for successful research careers in the life sciences, leading to awarding of M.S. and Ph.D. degrees. Our curriculum emphasizes comprehensive and interdisciplinary training in experimental biology at the molecular, cellular, and organismal levels, coupled with acquisition of the laboratory skills necessary to generate new knowledge as a research scientist.

Program History. The CMDB Graduate Program was established over 20 years ago as an Interdepartmental Graduate Program (IDGP) within the College of Natural and Agricultural Sciences (CNAS), recognizing the need for faculty across the college with a common interest in understanding biological phenomena at the cellular/molecular level to be able to recruit students separately from their own departmental programs. CMDB has counterparts in departmental programs at other UC campuses (e.g. Cell and Developmental Biology at UC Berkeley, UCLA, UC Davis; Molecular, Cellular and Developmental Biology at UC Santa Barbara, UC Santa Cruz; Developmental and Cell Biology, UC Irvine; Cell Biology, UCSF). The program structure was modeled on the success of other IDGPs, including the Genetics, Genomics and Bioinformatics (GGB) Program. It has maintained its interdepartmental status since its establishment; however, it has had a difficult time establishing a culture of faculty commitment and engagement against a backdrop of other partially redundant programs, both interdepartmental and departmental. Now, as funding priorities have shifted in CNAS, the program is seeking to become housed within the Department of Molecular, Cell, and Systems Biology (MCSB).

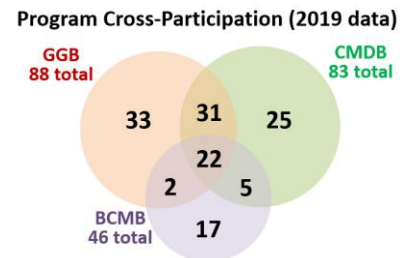
Program governance. Program Director (Morris F. Maduro since 01/2017; MCSB Dept), Associate Director (Jeff Bachant, MCSB; previous Director, 2012-2016), Recruitment Advisor (Nicole zur Nieden, MCSB). Additional members: Xuan Liu (Biochemistry Dept), Carolyn Rasmussen (Botany & Plant Sciences Dept), Venu Gonehal Reddy (Botany & Plant Sciences), Ted Karginov (MCSB). Maduro and Bachant also serve as advisors to continuing students. Maduro represents the CMDB program on the Teaching Assistant Allocation Committee (TAAC; see section D).

Non-academic support. Life sciences graduate programs including CMDB are given staff support through the CNAS Graduate Student Affairs Center (GSAC) which supports multiple departmental and interdepartmental programs. CMDB works with a Graduate Student Services Advisor (Julio Sosa) who also supports BCMB. Mr. Sosa deals with applications, recruitment, event coordination, and liaison with Graduate Division.

Financial recordkeeping is done by an Academic Financial Services Analyst (Lisa Diaz) with oversight from a Financial and Administrative Officer (Melissa Gomez), through an administrative unit responsible for multiple interdepartmental programs including Neurosciences. Monthly reports are sent to the Program Director and there is an annual meeting to review the budget.

Participating Faculty. The program relies on the voluntary participation of ladder-rank faculty across the college and campus for mentorship of students, teaching of the flagship courses, and program governance. 85 faculty participate from across three college units (CNAS, the Bourns College of Engineering, and the Division of Biomedical Sciences) and include faculty from the Departments of Molecular, Cell and Systems Biology (23), Botany & Plant Sciences (17), Biomedical Sciences (11), Microbiology & Plant Pathology (11), Biochemistry (7), Entomology (6), Bioengineering (4), Chemistry (2), Nematology (2), Chemical and Environmental Engineering (1) and Evolution, Ecology, and Organismal Biology (1). 27 participants (31%) are at the Assistant Professor level, 17 (20%) are at the Associate level, and 41 (48%) are at the Professor level or higher. Because IDGPs do not have influence in faculty hiring, diversity is representative of the diversity in the participating departments.

Program faculty participate in an average of 2.3 other programs in addition to CMDB. Cross-membership among CMDB, GGB, and the departmental Biochemistry and Molecular Biology (BCMB) program is shown on the right. The GGB program has a similar number of participating faculty as CMDB with an overlap of about 2/3.

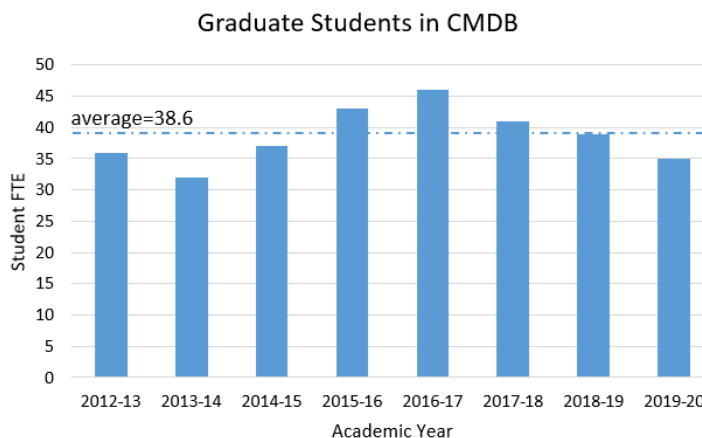


CMDB Faculty generally join the program in one of two ways. Either as an assistant professor they are advised by colleagues to join CMDB to broaden their ability to recruit students into their lab, or a CMDB rotating student identifies a faculty member who is not in CMDB. The Executive Committee then reviews the CV and votes on membership. All participating faculty members have equal voting rights.

Research areas. Because of the size of the program at 85 faculty, CMDB participating faculty are engaged in cutting-edge research across a diverse range of areas covering Cell, Molecular and Developmental Biology. Research areas include (but are not at all limited to): Regulation of gene expression at the transcriptional and epigenetic levels in development and disease, including cancer (Martinez); molecular biology of host-parasite interactions in entomopathogenic nematodes (Dillman); epigenetic control of gene expression in *Plasmodium* (LeRoch); antiviral RNAi mechanisms (Ding); developmental genetics and cell biology of plant root development (Rasmussen, van Norman); mesoderm cell specification in embryonic development (zur Nieden); biomarkers for toxic outcomes resulting from exposure to tobacco products (Talbot); specification of vertebrate neural crest (Garcia-Castro); molecular biology of small RNA molecules in *C. elegans* (Gu); signal transduction and gene expression in *Phytophthora* (Judelson); immune responses to mucosal pathogens (Nair); neuroendocrine control of insect development (Yamanaka); the regulation and function of alternative splicing in brain health and disease (Zheng); single-molecule fluorescence microscopy, to study the mechanism of eukaryotic translation initiation (O'Leary); molecular genetics of insect olfaction (Ray); small RNAs in *Arabidopsis* (Chen)*; genetics of responses to hypoxia (Bailey-Serres)*; Molecular basis of mosquito reproduction and immunity (Raikhel)* *National Academy of Science members.

Facilities. Faculty and students across programs, including CMDB, have access to cutting-edge equipment and expertise. Within CNAS, this includes core facilities and staff for Genomics, Plant Cell Biology, Bioinformatics, Proteomics, Stem Cells, Imaging, and Metabolomics. (Full list here: <https://cnas.ucr.edu/academics/instrumentation-facilities>) Access to facilities is on a fee-for-service basis with competitive pricing for UCR faculty. Many individual PIs have their own imaging platforms, high-throughput sequencing equipment, and cell sorting (e.g. 10xGenomics), and often these are freely shared among investigators.

Program size. Since the last review, the total number of students in CMDB has remained consistent, with an average of 39 students (~1 MS student per year, the rest PhD) and a range of 32-46. Within the college, CMDB is in the top three programs by size, along with Neuroscience and GGB. The other Life Sciences programs, and their enrollment in 2019-20, are: *Interdepartmental*:



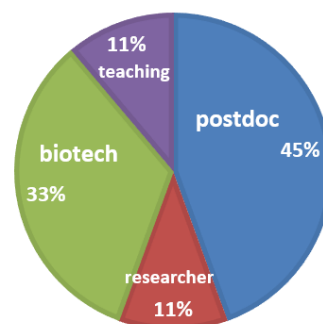
Environmental Toxicology (ENTX, 28 students); Neuroscience (NRSC, 35); Genetics, Genomics, and Bioinformatics (GGB, 36). *Departmental*: Microbiology (MCBL 26); Evolution, Ecology, and Organismal Biology (EEOB, 30); Biochemistry and Molecular Biology (BCMB, 32); Plant Pathology (PLPA, 15); Plant Biology (PLBL, 17); Entomology (ENTM, 23).

Student diversity. Among admitted and enrolled CMDB PhD students from 2012F-2019F, 63% were male and 37% female, a high skew towards males. By comparison, 52.5% of Biology PhDs are awarded to females in the U.S. (Feldon *et al.*, 2017, PMID 28130271). Year-to-year enrollment by Integrated Postsecondary Education Data System (IPEDS) classifications are shown below. The program could be doing better among Chicano/Latino and African American students.

	2012F	2013F	2014F	2015F	2016F	2017F	2018F	2019F
Masters								
Asian	1		1	1			1	
International					1	1		
Total	1	0	1	1	1	1	1	0
Doctoral								
American Indian/Alaskan Native							1	1
Asian	8	7	8	9	10	6	6	5
Black/African American	1	1	1	1			1	1
Chicano/Latino	4	4	5	5	4	2	2	3
White	11	12	14	19	21	20	17	14
Two or More Races	1	3	5	5	6	6	5	2
Domestic Unknown	6	2	1	1				
International	4	3	2	2	4	6	6	9
Total	35	32	36	42	45	40	38	35

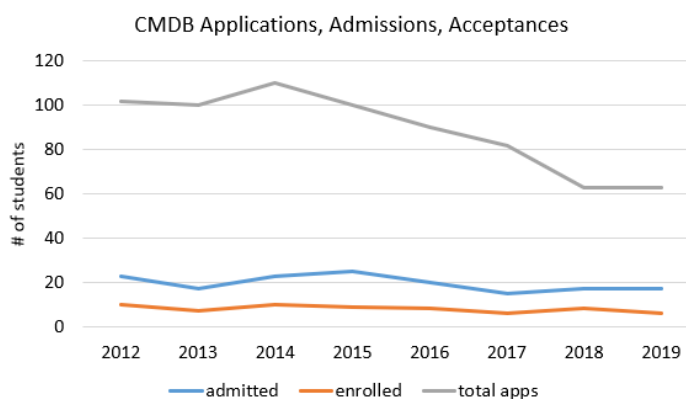
PhDs graduated. Since 2012, CMDB has graduated 41 PhD and 11 MS students. The average time-to-degree from 2010-2019 is 6.3 years, among the highest, but like other life sciences programs at UCR. This is 10 months longer than the nationwide average of 5.5 years for Life Sciences PhDs (National Survey of Earned Doctorates, <https://nces.nsf.gov/pubs/nsf20301/data-tables/>).

Placement of students after their degree. CMDB graduates generally move into research, biotechnology, or teaching positions. From 36/40 graduated PhD students from 2012-2019, 45% are in postdoctoral positions, 33% are in biotechnology companies, 11% are researchers in an academic setting, and 11% are teaching in the college system.



Interaction and Relationship with other Graduate Programs. Most CMDB faculty belonging to one or more other programs, which fosters interaction across programs through graduate students in laboratories that belong to different programs, as much as it also blurs a unique identity of the CMDB program. CMDB, GGB and MCBL jointly offer the CMDB 257 / GEN 261 / MCBL 250 Wednesday noon seminar series that is run by all three programs; many students in BCMB also attend this series as part of their degree requirement. At least 30 CMDB participating faculty are affiliated with the Institute for Integrative Genome Biology at UCR, which runs its own seminar series and offers Job Fairs every few years that bring in speakers from industry, educational, and academic careers. The last fair in January of 2019 was co-organized by CMDB faculty (Litt and Maduro), and featured two speakers who had graduated from the CMDB program and now work in industry and at a junior college. CMDB and GGB have in the past three years joined forces for 'networking' social events in late December for students and faculty in both programs. In recent years CMDB has joined with other programs such as Plant Biology, Environmental Toxicology, and Biochemistry during the February campus visit recruitment day.

Recruitment. A recruitment committee (Nicole zur Nieden (Chair), Dawn Nagel, Rong Hai, and program director *ex officio*) works with Julio Sosa in the GSAC to review applications and make recommendations to the Graduate Division for admission. In recent years we have set the target to 8 students (6 for fall of 2021). From 2012-2019 we received 710 applications and admitted 157 students (22%; ave. 20 students/yr) of which 64



accepted (an average of 40% take rate, or 8 students/yr). The program has seen a steady decline in applications since a peak of 110 for fall 2014. Because of the decline in applications, the number of admissions dropped to 17/yr for 2018 and 2019. Our acceptance rate declined to 35% for fall of 2019. Most accepted students are PhD applicants; CMDB admits less than 1 (self-funded) MS student per year. Among PhD admits, 10% were foreign and 90% are domestic. Foreign students are more likely to accept an offer of admission: 63% (10/16) of foreign admitted students, but only 37% (51/137) of domestic admitted students ultimately joined the program. The average GRE score of admitted PhDs who accept is 312, while for those who go elsewhere it is only marginally higher, 314. If GRE performance is taken as

an indicator of student achievement before graduate school, on average we are admitting students of approximately the 60th percentile among GRE takers. Hence, when admitted students do not come to UCR, we are retaining a similar quality of student and not specifically losing the stronger students.

Application considerations: Our recruitment committee takes a wholistic view of applications, considering academics, rigor of undergraduate classes, research experience, hardships that had to be overcome, personal statements, and strength of written letters. We also try to consider diversity in our admissions. Some students are admitted based on their application alone, while others have been interviewed by Zoom or offered an on-site visit during recruitment day in February. We have also considered late applications and occasionally admitted students off-cycle (e.g. winter start). A GRE score (verbal + quantitative) has been sought of 300 or higher because the Graduate Division will generally not offer support if the score is much lower than this. For 2020-2021 applications, graduate programs were asked to make the GRE optional, hence we have designed a rubric for evaluating applicants that basically follows our established practice, but henceforth the GRE score will be optional.

Undergraduate institution of domestic PhD applicants: For fall of 2012 through fall of 2019, 12% of PhD applicants did their undergraduate degree at UCR, 20% were from another UC campus, and 25% were from the California State University system. Hence, most applicants (at least 57%) earned their Bachelor's degree in California.

	12F	13F	14F	15F	16F	17F	18F	19F	TOTAL	%
UCR	3	1	5	5	5	8	4	4	35	12%
Other UC	10	5	10	6	6	6	8	8	59	20%
CSU	8	10	12	8	10	6	15	5	74	25%
Other US	17	10	10	23	19	18	8	9	114	38%
Foreign/unknown	2	4	2	3	2	2	0	3	18	6%

Student satisfaction with program: From UCR's exit survey of PhD graduates since 2012, most are generally satisfied with the courses, advising, and mentorship they received:

Question	No Opinion	Dissatisfied	Satisfied	Very Satisfied
Q4: Departmental advising/guidance from faculty	15%	19%	27%	38%
Q5: Departmental advising/guidance from staff	8%	12%	42%	38%
Q6: Overall quality of instruction in graduate courses	15%	8%	42%	35%
Q7: Professional relationship with doctoral committee/chair(s)	12%	23%	27%	38%
Q8: Level of financial assistance including employment	4%	38%	42%	15%
Q9: Faculty efforts assisting you in finding professional employment	15%	42%	23%	19%
Q10: Overall quality of faculty mentoring	8%	23%	38%	31%
Q11: Resources provided for student research and scholarship	12%	27%	50%	12%

Where we could make the most improvements are with funding and in helping our students to find employment after their degree.

C. Graduate Degree Programs

The CMDB program offers MS and PhD degrees. Full details are found in the program handbook and are summarized here. Prior to starting in the CMDB program all students must have completed undergraduate courses in Mathematics, Physics, Inorganic Chemistry, Organic Chemistry, Genetics, Statistics, and two upper-division courses in the CMDB area. (Many of our applicants fit the profile of students who have taken courses along a 'pre-med' track and were not admitted to a medical program.)

Required graduate courses. UCR is on the quarter system with three 10-week periods of instruction per academic year in fall, winter, and spring. All students must complete a graduate-level course in each of

Cell, Molecular, and Developmental Biology. Most will take the CMDB series CMDB 201 (Molecular Biology), CMDB 200 (Cell Biology), and CMDB 202 (Developmental Biology) in the first three quarters. The course CMDB 203 (Advanced Genetic Analysis in Model Organisms) is recommended for fall of the second year. Courses are four units and include reading and presentation of primary research papers. Students also take one course in professional development training (GDIV 403, Research and Scholarship Ethics), and the graduate seminar course CMDB 257, which is jointly offered by the CMDB, GGB and Microbiology Graduate programs across all three quarters every year; and one offering of a graduate seminar course in their area of specialization. PhD students must also complete at least three additional units of graduate courses in their research area which can be from any graduate program. In alternate years, CMDB faculty offer such courses such as CMDB 206 (Gene Silencing), CMDB 209 (RNA Biology), and CMDB 210 (Molecular Biology of Human Disease Vectors). PhD students also must fulfill a two-quarter teaching requirement. CMDB students (like all UCR graduate students) must maintain a GPA of at least 3.0 to remain in good standing.

Academic performance. The performance of students in the core courses is generally very good, although we often see a range of grades within any one course. This likely results from different levels of preparedness from the undergraduate degree. The average overall GPA is 3.72, equivalent to an A-.

Average grades (2014-2019)		Mean
CMDB 200: Cell Biology	3.88, 3.83, 3.89, 3.88	3.87
CMDB 201: Molecular Biology	3.75, 3.55, 3.67, 3.85	3.71
CMDB 202: Developmental Biology	3.61, 3.89, 3.72, 3.62	3.71
Average Cumulative GPA after 1 st year	3.78, 3.73, 3.62, 3.78	3.72

Laboratory Rotations. The program has historically recommended at least three laboratory rotations in the first year, with a goal of being housed in a lab from the summer after their first year and beyond. Students are funded by the Graduate Division for the first two quarters, and then by funds from CNAS for the third quarter. In recent years there has been a planned phase-out of the third quarter of funding and the program currently receives half of the spring quarter support compared to previous years. As a result, the program is recommending that students attempt to find a research lab even before they arrive at UCR, or maximize the potential rotations across fall and winter quarters by taking shorter (e.g. 5-week) rotations if possible. From a 2017 survey, of 27 students in labs, 22 (81%) reported finding laboratories within three rotations, 18 of those within one or two rotations. Hence, approximately 20% of students have difficulty finding a lab even after the first academic year.

Advising committee and annual research progress evaluation (ARPE). Students are required to meet with their guidance committee once per year to present their research progress and discuss plans for the coming year. They also fill out a form listing courses completed, conferences attended, courses taught, papers published, and any other relevant information to their progress. Reports are submitted to the program then forwarded to the graduate division. Continued enrollment is contingent on a satisfactory report.

Qualifying Exam. Students must complete one qualifying exam that has both a written and oral component. Both are administered within weeks of each other by a committee of four CMDB participating faculty (including one from the CMDB Executive Committee) and one additional non-CMDB faculty. One of the CMDB faculty will serve as Chair. The student's major professor does not form part of this committee. The student provides a written document, organized like a grant proposal, explaining

their proposed thesis project. The written exam consists of three-hour, closed book written exams, each with questions contributed by a committee member. The external committee member can choose to contribute a fifth written exam though usually does not. If the written exams are passed (with no more than one 'fail') the oral exam proceeds. This consists of a closed session that starts with presentation of the proposal (~30-45min) followed by questions from each committee member (~15min each) followed by committee deliberation. If the exam is deemed passing (with no more than one committee member deciding on 'not passing') the student has completed the qualifying exam and advances to candidacy status. A second attempt is usually permitted. Most students pass the qualifying exam, with one student not passing perhaps every three years.

Thesis. Upon completing the qualifying exam, students nominate a Thesis committee that will provide oversight for completion of the dissertation. The Thesis committee approves the thesis and the student proceeds to a public presentation of the thesis work, followed by an open question session, then a closed session with the committee.

Opportunities for professional development. The program provides opportunities for presentation of research in the ARPE meetings and annual symposia; leadership opportunity through service on the program's mini-Graduate Student Association (mini-GSA, 4-5 students; service involves attending quarterly meetings of the campus GSA and co-organizing symposia and networking events). The Graduate Division runs a successful mentoring program ([GSMP](#)); a Teaching Assistant Development Program ([TADP](#)) that consists of bi-annual orientations for TAs; the competitive University Teaching Certificate (UTC) program, also offered through TADP, for advanced training; and writing support and instruction through the [Graduate Writing Center](#). TAs assigned to Biology courses must take a one-quarter pedagogy class, BIOL 301, on active learning. Finally, students are encouraged to attend local, national, and international conferences in their research field, to network with other scientists and present their work.



In the past, the CMDB program offered awards for best presentation at the annual symposium, but this was not continued in recent years. The CMDB program does not otherwise have an awards program. Professional societies, departments, and programs (e.g. the Institute for Integrative Genome Biology), depending on PI affiliation, may offer awards. Through the Graduate Division, Departments can nominate TAs for teaching awards.

Scholarly productivity. Most CMDB students are attending meetings and publishing papers. From UCR's exit survey for graduates from 2012-2019, most students attended scholarly meetings at least 3 times and co-authored at least one publication with their thesis advisor (see below). Most students were encouraged to publish. However, most respondents (16/26, 62%) did not present a paper at a national meeting, and some 30% (8/26) have not co-published an article with their faculty. (In this latter case, it is possible they published a paper alone.) Also, unfortunately for the program, very few students apply for competitive Graduate Fellowships or training grants (e.g. from NSF or NIH), fewer than 1/year.

Question	6 or more times	3-5 times	Twice	Once
Q40: How many scholarly meetings did you attend (regardless of who paid)?	3	13	4	2
Question			Yes	No
Q41: Did you ever deliver academic papers at national scholarly meetings?			10	16
Q42: Were you encouraged by your faculty members to publish?			23	3
Question	None	1 or 2	3 or 4	5 or more
Q43: How many articles have you published alone?	16	6	4	0
Q44: How many articles have you co-authored with your faculty members?	8	9	7	2

D. Summary Data on Resources and Grant Funding

Grant funding of participating faculty. Grant support of participating faculty comes from many agencies including the NIH and NSF. Overall funding is high, with a grand total of over \$300 million in awarded funds, an average of \$3.6M per participating faculty, with half of faculty having awards of over \$500K. However, this is an artificially high total for several reasons. First, these funds are total awarded amounts distributed over several years, do not include multi-investigator/multi-campus awards, and may include funding for activities other than CMDB-related research projects. Second, and more importantly, any participant in CMDB can spend funds on researchers, postdocs, and students in other graduate programs. A better indicator of investment of research grants into CMDB student stipends comes from student support discussed below.

Financial packages. When admitted, students are given a five-year financial package that includes the first three quarters of Graduate Student Research (GSR) support from the campus, in the form of two quarters from the Graduate Division, and one quarter from CNAS. The third quarter of support comes from a yearly ~\$100K allocation from CNAS to the CMDB program, a significant portion of which covers the GSRs. The summer before the second year, and the second through fifth years, are promised to the students in the form of GSRs from faculty grants and Teaching Assistantships (TAs), and these are contingent upon students finding a lab in which to complete their research by the end of their third quarter. There are additional add-ons from the Graduate Division (e.g. Dean's Distinguished Fellowship) and the UC system, including the Eugene Cota-Robles award (ECRA; \$24K supplement). These can be either supplemented into part of the first year of support, or in recent years, we have used them as a way to fund some students over their first summer and subsequent quarters, depending on the size of the award. We do not have the means to provide housing allowances or increase stipend offers for particularly strong applications, hence we lose many good domestic applicants to competing programs at nearby institutions such as UC Irvine.

The annual allocation from CNAS has been approximately \$1M across 10 life sciences programs, both inter-departmental and departmental. To meet budget targets, the college will be reducing support to these programs in a phased reduction to 50% for 2020-21 and 2021-22, to no support for 2022-23. Without the allocation from CNAS, the program will be forced to change how it structures the offers to students. Among considerations are to restrict students to two-quarter rotations, rely on students earning competitive fellowships, impose TAs for the third quarter, or abolish the rotation system in favor of matching students to labs before they arrive at UCR. It is not clear what effect such changes would have on the size of the program.

Teaching Assistantships. Several teaching assistantships are available to life sciences graduate students, on the order of 100/quarter. In recent years, the number of available TAs has been slightly lower

than the number of students requesting them. In the UC system, Department Chairs control teaching and therefore assignment of TAs. Many required courses for life sciences majors are controlled by the EEOB Department, however there are many faculty from outside of EEOB that teach in these, particularly in the large introductory Cell/Molecular Biology course BIOL 005A, the genetics course BIOL 102, and the Molecular Biology course BIOL 107A. Hence, programs and life sciences departments formed the TA Allocation Committee (TAAC) which oversees assignment of TAs across programs and courses in CNAS. Program Director Maduro represents the CMDB program at these meetings. Because of the way that TA assignments are prioritized, students are not guaranteed a TAship in any given quarter. The only exceptions are when a course instructor (typically their major professor) or Academic Coordinator specifically requests them, or if there are no other TAs with specialized knowledge for a particular course. TAAC also prioritizes students who are in their fifth year or earlier in their programs. Graduate TAs in the UC system belong to the UAW union.

GSR and TA salary rates depend on the step and percentage and are available here:

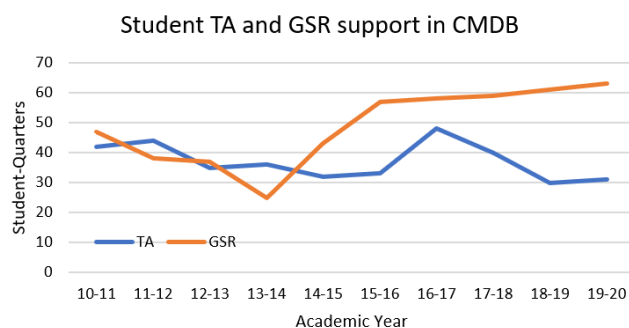
https://graduate.ucr.edu/graduate-student-employment#gsr_salary. CMDB students are paid at steps 4 (first year), 5 (completed one year of graduate study or have MS degree), or 6 (advanced to candidacy). Most students are paid at a 49-50% rate. TA stipends are typically \$2508.00/month (\$7524/quarter), and GSR salary support ranges from \$2252-\$2513 monthly (\$6757-\$7542/quarter) depending on step.

How CMDB students have typically been funded.

Over the past 10 years, students in CMDB have steadily moved from having equal numbers of students on TAship vs. GSR (coming from research grants, departmental funds, or program funds) a decade ago, to a 1:2 ratio of TA:GSR. Hence, even though the total number of students has been falling, the proportion of those that are TAs in any given quarter has become greatly

reduced. There is a subset of students who nonetheless are TAs on a perpetual basis. From a 2017 survey, most respondents (18/30, or 60%) had been a TA at most two times; of the remaining 12 students, 8 had been TAs 3-8 times at that point, and 4 had been TAs 11 or more times. Hence, some 40% of students are in a situation where they must be TA more times than is required by the program. Some students may seek additional TAs because they wish to augment their teaching experience for later job prospects; others may be TAs because their major professor requires their expertise for a course; and the rest may be in labs in which their PI is unable or unwilling to pay the student.

Additional funding sources. The campus offers a small number of awards for student research, travel or GSR (<https://graduate.ucr.edu/funding#fellowships>). These include quarterly Dissertation Research Grants of up to \$1000 and conference travel awards. A small number of Dissertation Year Fellowship and the Graduate Research Mentorship Program awards have been available from the Graduate Division that award two or three quarters of GSR support across the CMDB program. The program itself has no funds to offer competitive awards, but is occasionally called upon to provide an 'emergency' GSR to students for a student who is at the end of their degree in their 6th year who otherwise would not be supported; students who need support for a 2nd-year (or later) rotation; and various other reasons. Every year some two or three students will be in this situation.



There is a strong perception from faculty and students that the program needs more access to campus-level resources. From a survey of participating faculty and students in 2017, 90% of 63 respondents agreed or strongly agreed with the statement that "The CMDB program needs more discretionary money to fund students" and 64% agreed with "The CMDB program needs access to more TAs." There is also a perception that available financial support is not equitably distributed: 50% (13/26) students in UCR's exit survey answered 'no' to the question "Was the financial support available within your program distributed fairly?" Part of this dissatisfaction likely results from a combination of perceived unfairness in TA assignments (a consequence of confidential deliberations of the TA Allocation Committee), coupled with differential resources available to different departments that CMDB faculty are in. Regardless, quarter-to-quarter uncertainty over stipend funding is a source of stress for many students.

Prospects for a training grant. The CMDB program does not have a training grant. The previous external review in 2010 concluded that the program would not be competitive, and given that the program metrics have stayed similar, this situation has not changed.

E. Comparison to the Previous Reviews

Below we list recommendations from the external review in 2010 and an internal review in 2013 and how things exist today.

Reduction of the number of graduate programs in CNAS. In the mid-2010s, CNAS leadership initiated a plan to restructure the life sciences departments, to address lopsided departmental faculty numbers and an excess of programs, to collect faculty of similar disciplinary interests, and move away from an older 'taxonomic' type of departmental structure. One of the driving forces of the redesign was a grassroots effort to merge interested faculty from Botany and Plant Sciences and Cell Biology and Neuroscience (the former name of MCSB). The Dean's office invited proposals to create a new set of departments; faculty would leave their department and be appointed into the new department of their choice; then the original departments, now empty, would be disestablished. Ultimately this plan settled on new proposed departments. However, fear of separating colleagues from existing departmental affiliations, coupled (perhaps) with concerns over how merit and promotion files might be viewed in new departmental contexts, and possible reallocations of financial resources, resulted in only a couple of departmental name changes and a handful of faculty that changed departments. One of these was to change the Cell Biology & Neurosciences Department into the Molecular, Cell, and Systems Biology (MCSB) department, which was followed shortly afterwards by the moving of CMDB participating faculty Maduro and Maslov (from Evolution, Ecology & Organismal Biology) and Dahanukar and Ray (from Entomology) into MCSB.

Graduate programs were to be considered after the departmental restructuring, with the idea that some of the new departments would assume ownership of previously interdepartmental programs or create newer interdisciplinary programs. Because the departmental restructuring failed, one consideration was to unite CMDB and GGB into one larger program. However, while some faculty have been in favor of such a merge, the programs could not build consensus. As an alternative, in 2019-2020 the MCSB Department initiated discussions with CMDB leadership to give the CMDB program a departmental home, and in spring of 2020 both MCSB and CMDB voted to proceed with plans. The onset of the pandemic and a change of Senate leadership have stalled these plans.

The external review team also recommended possibly moving the CMDB program into the newly forming School of Medicine. The SOM has its own graduate program in Biomedical Sciences and there has been no consideration to move CMDB into SOM. Rather, CMDB has taken on participating faculty from SOM, and CMDB is planning for a move to MCSB.

Strengthening of Developmental Biology as a disciplinary area (or removal from program name). At the time, developmental biology was not equally represented by discipline and the external review recommended changing the program name to just 'Molecular Cell Biology'. The current membership of CMDB includes several faculty that work in development: Maduro (*C. elegans*); Garcia-Castro (vertebrate neural crest); zur Nieden (Stem Cells); van Norman (*Arabidopsis* root development); Rasmussen (maize root development); Karginov (Stem Cells); Venu Gonehal Reddy (*Arabidopsis* shoot apical meristem development); Patricia Springer (lateral organ development in *Arabidopsis*); Yamanaka (*Drosophila* development).

Increasing resources to the CMDB program. The external review of 2010 recommended that the campus provide more resources to the program. Unfortunately, the resources to many life sciences graduate programs has only decreased in recent years, including the planned elimination of the annual \$100K program allocation from CNAS. We do not see this situation improving over the long run. Plans have been drafted by the college to return some of the indirect cost recovery from grants to the life sciences programs but these are still in discussion. Because of uncertainty across all campus operations resulting from the pandemic, there is much uncertainty about funding to all programs and units.

Faculty participation/size. The external team in 2010 was greatly concerned about the lack of enthusiasm among participating faculty for the program in general. We continue to see this problem, through a lack of faculty present at the symposia, seminar series, and networking/social events. This is a perpetual problem resulting from most faculty not having a CMDB student in their labs, and their participation in many graduate programs. It is exacerbated by the location of faculty across several buildings across the campus, i.e. Boyce, Batchelor, Webber, Entomology, Spieth, Biological Sciences, Medical Research Building, and Genomics, on the South end of campus, and the recently established Multidisciplinary Research Building 1 (MRB1) located on the North end of campus which has further separated faculty.

It was also observed that the program membership, while large (75 at the time, 85 today), involves only a small number of active faculty that participate in teaching in the courses and in governance of the program. Unfortunately, this problem persists and is common to the interdepartmental programs. The external team recommended reducing the program faculty to a smaller, committed core. In response to this concern, the previous program director (Bachant) had proposed changes to the program Bylaws that would call for a two-tiered system of faculty participation. However, the college departmental restructuring started around the same time, leading to speculation that graduate programs were going to be changed. Today, the proposed move of CMDB into the MCSB department may provide an opportunity for a smaller group of committed faculty to restructure CMDB into a thriving program. Until a major restructuring to CMDB or CNAS occurs, the problem of limited faculty participation will remain difficult to address in the long run.

The external team also recommended instituting a weekly seminar series that would involve participating CMDB faculty and students in recurrent journal club and research presentations. A series of this type was initiated after the review, however CMDB, along with the GGB and MCBL programs, joined forces shortly afterwards to offer the joint seminar series across all three quarters. Aside from the

reinstated annual symposium (since fall of 2017), there is no other opportunity for students and faculty to interact around their research.

Enforcement of program Bylaws. The CMDB program bylaws specify several standing committees, including the Executive Committee and committees for Admissions, faculty membership, and the yearly symposium. Only the Executive and Admissions committees currently meet. The external review recommended enforcing criteria for active membership. As mentioned earlier, there has been a lack of enthusiasm among the executive committee to institute different tiers of faculty membership. As well, most of the newer faculty to join the CMDB program are at the Assistant Professor level, and the tendency has been to allow such faculty time to build up their research programs and hence not impose additional criteria for membership. As such, most faculty view CMDB as only a recruitment tool, and not as a program unto itself with its own identity.

Improving graduate recruitment. The external review noted that most of the entering CMDB students are not in the top quartile but the next quartile down (50th-75th percentile). Over the past 10 years we have continued to attract the same applicants as we always have, 60th percentile by average GRE score. The program has not been able to divert resources towards making more competitive application packages to top students. One reason is that most add-ons are through the UC system, so students receiving such offers through CMDB would also receive them from a competing program. If we are to be more competitive, it may be through better connecting labs to students in advance of arrival to the campus, providing applicants with more certainty about their graduate experience and a personal connection to attract them to UCR. It would also allow faculty who have research grants to increase offers of financial support to a prospective applicant. The program director (Maduro) recently signed on with an NIH-funded Bridges to the Doctorate program in conjunction with several local Cal State campuses, including Cal State Northridge (CSUN). It is not clear how this participation will help recruit better students to CMDB in the long run; many of our applicants already come from CSU campuses as BS or MS students.

The review team also recommended better filtering out of applicants with low motivation for pursuing graduate school, because these tend to leave the program or take exceptionally long to complete their degrees. In recent years, the admissions committee has put in extra effort to offer admission to the best prepared and motivated students, through Skype/Zoom interviews, personal interviews during campus visits, and contacting letter writers.

In 2010 the external review team cited data that 4/21 (19%) of graduated students had not published a paper before they graduated. For our 2020 report, we find that this situation is possibly worse, with 8/26 (31%) respondents reporting no publications with their major professor.

Hence, despite our best efforts, we have not been able to make significant inroads in attracting top-notch applicants, improving time to graduation, and improving metrics of scholarly productivity. An almost two-fold reduction in the number of applications to the program since 2014 suggests that the profile of the program is lower, however CMDB remains among the largest three graduate programs in the life sciences at UCR, and there has been a decline in applications to many programs at UCR, not just CMDB.

Over-reliance on TAs to fund students. The internal review in 2013 noted that students may not be advancing because they are being forced into taking TAs, which compromise time that students can spend on their research. As shown earlier in this report, far fewer students are on TAs than GSRs by

proportion, suggesting this problem is no longer as severe. There are other life sciences graduate programs in CNAS whose students rely more heavily on TAs. Despite the higher investment in student GSAs, however, CMDB students still average over six years to their degree.

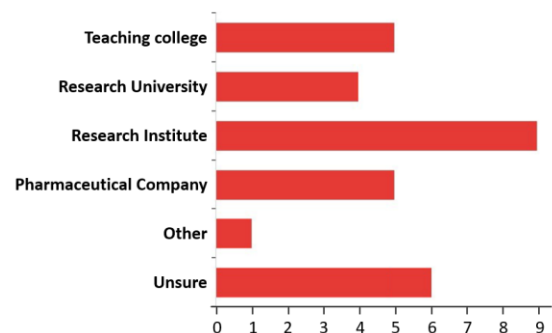
F. Miscellaneous

Self-funded MS program as a source of revenue. During discussions about funding the life sciences graduate programs in CNAS, the possibility was raised for programs to create course-based Master's or combined BS-MS programs that could be used as a source of revenue to fund PhDs; the Graduate Division would pass some \$5K/student of tuition directly back to the graduate program. The CMDB executive committee has discussed creation of such a program but there has not been a willingness to invest the time. It is also not clear what kind of niche area a CMDB MS degree would have to occupy that both made use of existing classes and could attract enough students to make such a program worthwhile.

Getting students into labs. It has been challenging to enumerate which faculty can accept incoming students each year, let alone commit to a student before a rotation. Because PIs typically participate in two or more programs, they may have limited space that involves competition between a CMDB student and one from another program. From the student side, over the summer before they start in the program they are not usually on campus, leaving communication by email the only way they can reach out to prospective major professors. Often students do not even hear back from professors, or they contact only a few who may not be able to take students in the coming year. Many PIs are also waiting on the outcome of grant proposals and cannot commit to students. Finally, some PIs may choose to invest grant resources on postdoctoral researchers or research associates rather than graduate students.

Course curriculum. The program has not examined the core course requirements since the adoption of CMDB 203. From 30 respondents to a 2017 survey, only 6/26 (23%) of students agreed or strongly agreed with the statement that 'The material covered in the CMDB courses has directly helped me with my thesis research.' The rest were neutral or disagreed. Hence, most students are not finding relevance of the courses to their research. This no doubt reflects the focus of individual projects to much narrower research foci than covered in the courses. However, because of the interdisciplinary and big data approaches in science today, an advanced data science statistics/programming course may be a useful addition to the CMDB courses.

Long-term goals of students. Of 30 PhD student respondents to a survey in 2017, only 4/30 (13%) expressed a desire to pursue a career in a research university. 17% (5/30) were interested in a teaching college and 30% (9/30) wanted a career at a research institute.



Challenges in faculty leadership of the program.

A major impediment in strong governance of the program is that there is little reward for participating in governance of an interdepartmental program, beyond counting towards general service to the college in

participating faculty.

- Dr. Ray motioned that the MCSB department house the CMDDB graduate program (Chair Martins-Green clarified
 - ❖ Stanley seconded
 - ❖ 19 in favor
 - ❖ 1 against
 - ❖ 0 abstain

- It was suggested to approve the proposal by the end of spring quarter in order to complete

**Proposal to transfer the CNAS Cell, Molecular, and Developmental Biology (CMDB)
Undergraduate Interdepartmental Major to the CNAS Department of Molecular, Cell and
Systems Biology (MCSB)**

January 14, 2021

Proposal for a charge for the Special Review Committee

Per Appendix 7 (5a) of the Academic Senate Bylaws dealing with procedures for transfer, consolidation, disestablishment, or discontinuance of an academic program, or unit, we propose the following charge for the Special Review Committee:

1. Evaluate the rationale and justification for the proposed program move
2. Comment on whether the CNAS MCSB department's infrastructure is adequate to accommodate the move
3. Consider the effect of the proposal (if approved) on other units within CNAS and on campus
4. Discuss budgetary implications
5. Provide a report to the Senate Executive Council dated 7 weeks from the issuance of the charge

A handwritten signature in blue ink that reads 'Thomas M. Smith'.

Thomas M. Smith
Interim Provost and Executive Vice Chancellor

A handwritten signature in blue ink that reads 'Kathryn Uhrich'.

Kathryn Uhrich
Dean, CNAS

Proposal to transfer the CNAS Cell, Molecular, and Developmental Biology (CMDB) Graduate Program to the CNAS Department of Molecular, Cell and Systems Biology (MCSB)

January 14, 2021

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Thomas M. Smith
Interim Provost and Executive Vice Chancellor

Handwritten signature of Kathryn Uhrich in blue ink.

Kathryn Uhrich
Dean, CNAS

Special Review Committee Report on the proposed transfer of the CNAS Cell, Molecular, and Developmental Biology (CMDDB) Graduate Program to the CNAS Department of Molecular, Cell and Systems Biology (MCSB)

5-14-2021

Committee Members:

Chair, Peter Hickmott, Associate Professor of Psychology, CHASS

Wenwan Zhong, Professor of Chemistry, CNAS

Thomas Girke, Professor of Bioinformatics, CNAS

Richard Debus, Professor of Biochemistry, CNAS

Adam Godzik, Professor Biomedical Sciences, SOM

Xiaoping Hu, Professor of Bioengineering, BCOE

Introduction

Per Appendix 7 (5a) of the Academic Senate Bylaws, this Special Review Committee (SRC) was entrusted with the following charge:

1. Evaluate the rationale and justification for the proposed program move.
2. Comment on whether the CNAS MCSB department's infrastructure is adequate to accommodate the move.
3. Consider the effect of the proposal (if approved) on other units within CNAS and on campus.
4. Discuss budgetary implications.

Each of these items is discussed below.

1. Evaluate the rationale and justification for the proposed program move.

The committee finds strong rationale and justification for the proposed move.

The primary issue identified as a rationale for the move is the difficulty in funding graduate students. Previously, a significant allocation for students came to the program directly from CNAS. This allocation is to be phased out by 2022-2023. Even with this allocation, the program has had difficulty generating competitive packages for incoming graduate students. TA assignments, since these are not controlled by the program, have also been problematic. These funding difficulties have led to poor quality and retention of graduate students. Another significant issue identified is participation in the program by faculty, for mentoring students and for program administration.

Both these issues should be improved by this move: The move to MCSB would allow the CMDDB program access to the administrative and financial support of the department. Stable funding and more competitive packages can lead to improved recruitment and retention. More faculty involvement will also improve the retention of students who can better be connected to their mentors in the department. Hopefully, faculty in MCSB will feel more engaged with the major, since it is now within the department and will appear more appropriate as department-level

service. With the CMDB identity within the MCSB department, faculty should feel more inclined to mentor CMDB undergraduates and participate in general.

The program move is supported almost unanimously by MCSB faculty and by most of the CMDB faculty outside the department. The current and former directors of the program also support it, as do the deans of CNAS and the graduate division.

2. *Comment on whether the CNAS MCSB department's infrastructure is adequate to accommodate the move.*

The MCSB department infrastructure seems adequate to accommodate the move.

3. *Consider the effect of the proposal (if approved) on other units within CNAS and on campus.*

No significant effects on other units are expected.

4. *Discuss budgetary implications.*

As addressed above, the budgetary implications for the CMDB program are very favorable. For MCSB, the budgetary impact is expected to be minimal, based on its current funding model.

Special Review Committee Report on the proposed transfer of the CNAS Cell, Molecular, and Developmental Biology (CMDB) Undergraduate Interdepartmental Major to the CNAS Department of Molecular, Cell and Systems Biology (MCSB)

5-14-2021

Committee Members:

Chair, Peter Hickmott, Associate Professor of Psychology, CHASS

Wenwan Zhong, Professor of Chemistry, CNAS

Thomas Girke, Professor of Bioinformatics, CNAS

Richard Debus, Professor of Biochemistry, CNAS

Adam Godzik, Professor Biomedical Sciences, SOM

Xiaoping Hu, Professor of Bioengineering, BCOE

Introduction

Per Appendix 7 (5a) of the Academic Senate Bylaws, this Special Review Committee (SRC) was entrusted with the following charge:

1. Evaluate the rationale and justification for the proposed program move.
2. Comment on whether the CNAS MCSB department's infrastructure is adequate to accommodate the move.
3. Consider the effect of the proposal (if approved) on other units within CNAS and on campus.
4. Discuss budgetary implications.

Each of these items is discussed below.

1. Evaluate the rationale and justification for the proposed program move.

The committee finds the rationale and justification for the move to be acceptable.

The CMDB program is popular with undergraduates and has grown to nearly 200 students. Current administration and governance of the major is no longer adequate. The lead faculty for the program identify three significant issues: 1) assignment of teaching; 2) development of courses specific for the major; 3) faculty participation in program activities and administration. Moving the program into MCSB should improve each of these problems: The department chair of MCSB will be able to assign courses. The department will be able to define a new curriculum, if deemed necessary, and to have department faculty develop and teach those courses. Hopefully, faculty in MCSB will feel more engaged with the major, since it is now within the department and will appear more appropriate as department-level service. With the CMDB identity within the MCSB department, faculty should feel more inclined to mentor CMSB undergraduates and participate in general.

The program move is supported almost unanimously by MCSB faculty and by most of the CMDB faculty outside the department. The current and former directors of the program also support it, as does the dean of CNAS and the CNAS executive committee.

2. Comment on whether the CNAS MCSB department's infrastructure is adequate to accommodate the move.

The MCSB department infrastructure seems adequate to accommodate the move.

3. Consider the effect of the proposal (if approved) on other units within CNAS and on campus.

Since the CMDDB program currently relies completely on courses from other departments, no effects on other units are anticipated.

4. Discuss budgetary implications.

As an interdepartmental program, CMDDB does not have its own budget. Thus, the only money involved is the course material fees that are collected from the students as they take the classes that have course fees. Those fees are spent to run the classes.



Academic Senate

COMMITTEE ON ACADEMIC PERSONNEL

June 3, 2021

To: Jason Stajich, Chair
Riverside Division Academic Senate

From: Yinsheng Wang, Chair *Yinsheng Wang*
Committee on Academic Personnel

Re: **Transfer of CMDB Graduate Program and CMDB Undergraduate Program to the Department of MCSB**

At its May 24, 2021, meeting, CAP discussed the transfer of CMDB Graduate Program and CMDB Undergraduate Program to the Department of MCSB. CAP felt that the transfer will provide support to undergraduate students majoring in CMDB and graduate students enrolled in the CMDB program. CAP has no concerns about the transfer, and, by a vote of +9-0-0, unanimously supports the request.




Academic Senate

COMMITTEE ON EDUCATIONAL POLICY

June 7, 2021

To: Jason Stajich, Chair
Riverside Division

From: Stefano Vidussi, Chair 
Committee on Educational Policy

**RE: Proposal to Transfer the Cell, Molecular, and Developmental (CMDDB)
Graduate and Undergraduate Interdepartmental Programs to the CNAS
Department of Molecular, Cell and Systems Biology (MCSB)**

The Committee on Educational Policy reviewed the transfer proposal on behalf of the Committee's charge of undergraduate education and voted to support the transfer of the undergraduate CMDDB major to the MCSB department. One Committee member who is a member of the MCSB department abstained from the vote.



COMMITTEE ON DIVERSITY, EQUITY, & INCLUSION

June 3, 2021

To: Jason Stajich, Chair
Riverside Division Academic Senate

From: Xuan Liu, Chair
Committee on Diversity, Equity, & Inclusion

Re: [Campus Review] Appendix 7 Transfer of Program: Transfer of the CMDB Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

The committee on Diversity, Equity, and Inclusion reviewed the proposed transfer of the CMDB Graduate Program and the CMDB Undergraduate Program to the Department of MCSB and supports the proposal.



Academic Senate

COMMITTEE ON FACULTY WELFARE

June 4, 2021

To: Jason Stajich
Riverside Division Academic Senate

From: Patricia Morton, Chair
Committee on Faculty Welfare

Re: [Campus Review] Appendix 7 Transfer of Program: Transfer of the CMDB Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

The Committee on Faculty Welfare consider by email the proposals to transfer the Undergraduate Cell, Molecular, and Developmental Biology (CMDB) Program and the Cell, Molecular, and Developmental Biology (CMDB) Graduate Program to the Department of Molecular, Cell and Systems Biology (MCSB) in the College of Natural and Agricultural Sciences. The CFW is in support of the proposed transfers and notes that while it can be difficult to cull teaching and administrative responsibilities entirely from departmental faculty, it appears that the MCSB Department is well aware of this possible impact and will likely draw upon supportive faculty resources throughout CNAS.



Academic Senate

GRADUATE COUNCIL

June 3, 2021

To: Jason Stajich, Chair
Riverside Division

From: Amanda Lucia, Chair
Graduate Council

A handwritten signature in blue ink that reads "Amanda Lucia".

Re: [Campus Review] Appendix 7 Transfer of Program: Transfer of the CMDB Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

The Graduate Council reviewed the proposal to transfer the CMDB Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB) at their June 3, 2021 meeting. The Council was supportive of the proposal and voted in favor to approve the transfer of both programs to the MCSB department.



PLANNING & BUDGET

June 9, 2021

To: Jason Stajich, Chair
Riverside Division

From: Katherine Kinney, Chair
Committee on Planning and Budget

RE: [Campus Review] Appendix 7 Transfer of Program: Transfer of the CMDB Graduate Program and the CMDB Undergraduate Program to the Department of Molecular, Cell and Systems Biology (MCSB)

Planning & Budget (P&B) discussed the proposal to transfer the Cell, Molecular, Developmental Biology (CMDB) undergraduate program and CMDB graduate program to the Department of Molecular, Cell and Systems Biology (MCSB) at their June 8, 2021 meeting. P&B found no resource issues with either proposal and was supportive of transferring both the graduate and undergraduate programs to the MCSB department.