Master’s Degree Requirements:

1) Admissions requirements: The applicant’s academic achievement must conform to the standards specified by Graduate Studies for graduate study. Applications are accepted through January 15 of the previous academic year for the next Fall entering class.

   a) Prerequisites:

   Physics: One year of General Physics with laboratory or equivalent content, e.g. PHY 7A, 7B, 7C.

   Chemistry:
   1) General Chemistry: One year of General Chemistry with laboratory or equivalent content, e.g. Chemistry 2A, 2B, and 2C.
   2) Organic Chemistry: Two quarters of Organic Chemistry with laboratory or equivalent, e.g. Chemistry 8A and 8B.
   3) Introductory Biochemistry: Two quarters of Biochemistry or equivalent content, e.g., BIS 102 and 103.
   4) Biochemistry or Cell Biology laboratory: One quarter of Biochemistry or cell biology laboratory or equivalent content, e.g., MCB 120L or NPB 104L

   Mathematics: One year of Analytical geometry and calculus or equivalent content, e.g. Math 16A, 16B, 16C

   Statistics: One course in Introduction to Statistics or equivalent content, e.g., Statistics 13

   Biology: One year of General Biology or equivalent content, e.g. BIS 1A, 1B, and 1C.

   b) Deficiencies: Students requiring more than two courses to remedy deficiencies in the above requirements will not normally be admitted. Course work deficiencies should be made up by the end of the first academic year following initial enrollment by earning a letter grade of “B” or better.

2) M.S., Master’s Plan: The M.S. degree is awarded under Plan I (thesis option) as well as Plan II (comprehensive exam option). The requirements for these two options are as follows:

   Plan I. This plan requires 30 units of graduate and upper division courses (the 100 and 200 series only) and, in addition, a thesis or a project in lieu of a thesis. At least
12 of the 30 units must be graduate work in the major field. There is no comprehensive exam.

**Plan II.** This plan requires 36 units of graduate and upper division courses, of which at least 18 units must be graduate courses in the major field. Not more than 9 units of research (299 or equivalent) may be used to satisfy the 18-unit requirement. A comprehensive final examination in the major subject is required of each candidate. No thesis is required.

3) **Course Requirements:** The Office of Graduate Studies requires that every full time student register for 12 units each quarter. This requirement can be met by a combination of courses included on the student’s program of study (please see the list below) and 299’s.

**M.S., Plan I (minimum 30 units):**

- MCP 210A, MCP 210B, MCP 210C
- 6 units (max) 290/291/296/299 courses
- 9 units of cellular or systemic physiology courses (upper division or graduate)
- Thesis

  a) **Core Courses:**
    MCP 210A, Advanced Physiology, 4 units
    MCP 210B, Advanced Physiology, 6 units
    MCP 210C, Advanced Physiology, 5 units

  b) **Elective Courses:** The balance of the 30 units are to be selected from upper division or graduate courses in physiology or closely related subjects. No more than six of the 30 units can be credited from 290-level courses [i.e., 290/291D/298(group study), 299 (research), or GGG 296]. All units must be selected in consultation with the Graduate Adviser from the course listing for either the Cellular or System Physiology subspecialty.

  c) **Summary:** A minimum total of 30 units are required. A minimum course load is 12 units each academic quarter.

**M.S., Plan II (minimum 36 units):**

- MCP 210A, MCP 210B, MCP 210C
- 6 units (max) 290/291/296/299 courses
- 3 units graduate physiology courses
- 12 units of upper division or graduate physiology courses
- Comprehensive physiology exam
- This is a terminal degree

  a) **Core Courses:**
    MCP 210A, Advanced Physiology, 4 units
    MCP 210B, Advanced Physiology, 6 units
    MCP 210C, Advanced Physiology, 5 units
b) **Elective Courses**: No more than six of the 36 units can be credited from 290-level courses [i.e., 290/291D/298 (group study), or 299 (research) or GGG 296]. All units must be selected in consultation with the Graduate Adviser.

c) **Summary**: A minimum total of 36 units are required. A minimum course load is 12 units each academic quarter.

4) **Special requirements**: Students in the core course must receive a grade of B- or better to satisfy the core course requirements.

5) **Committees**:

a) **Admission Committee**

Once the completed application, all supporting material, and the application fee have been received, the application will be submitted to the Admissions Committee. The Admissions Committee consists of a minimum of three graduate group faculty and one graduate group student. This committee then makes recommendations of admission, deferral or denial of admission to Graduate Studies, which officially acts on the applications.

b) **Course Guidance or Advising Committee**:

Students will be assigned a Graduate Adviser who will help plan an appropriate program of instruction. The adviser is also available for general counsel and guidance concerning the Molecular, Cellular and Integrative Physiology Graduate Group and University requirements for the designated degree and will interpret the rules and policies of Graduate Studies and the Molecular, Cellular and Integrative Physiology Graduate Group as they apply to the student’s specific area. There is a minimum 12 unit requirement per quarter rule for full time students. These 12 units can be made up of required courses and 299s.

c) **Thesis Committee or Comprehensive Examination Committee**:

**Thesis Committee**:

For those students who choose Plan I, the research program and thesis must be completed under the direct guidance of a major professor who is a member of the Molecular, Cellular and Integrative Physiology Graduate Group, chosen in consultation with the Graduate Adviser. At least two other faculty members assist the major professor as members of the thesis committee. The two additional faculty members are chosen by the student in consultation with the major professor. Thesis committee nominations are then reviewed by the CEP and submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy (DDB 80, Graduate Council B.1.). The major professor serves as Chair of the committee.

**Comprehensive Exam Committee**:

This examination shall be administered by a three faculty member committee appointed by the Committee on Educational Policy (students, through their Graduate Adviser, can
submit to the Committee on Educational Policy a list of faculty whom they would suggest to be on this committee). At least two members must be in the Molecular, Cellular and Integrative Physiology Graduate Group, and at least one must be in the student’s area of specialization (i.e., Cellular Physiology or Systemic Physiology). These nominations are reviewed by the CEP and submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy (DDB 80, Graduate Council B.1.). There are three possible outcomes of the examination - pass, not pass, and fail. Pass allows the student to receive the M.S. degree. Fail means that the student is disqualified. Not pass means that the student is required to retake all or part of the examination OR to satisfy another requirement. If requested, the second examination is to be scheduled at the earliest possible date and will be administered by the same committee. Satisfactory completion of this examination (or completion of the new requirement) will result in an M.S. degree. Failure will result in disqualification.

6) Advising Structure and Mentoring:

The Major Professor is the faculty member who supervises the student’s research and thesis; this person serves as the Chair of the Thesis Committee. The Graduate Adviser, who is nominated by the Chair of the program and appointed by the Dean of Graduate Studies, is a resource for information on academic requirements, policies and procedures, and registration information. The Mentoring Guidelines can be found at http://www.gradstudies.ucdavis.edu/gradcouncil/mentoring.pdf.

7) Advancement to Candidacy:

Every student must file an official application for Candidacy for the Degree of Master of Science after completing one-half of their course requirements and at least one quarter before completing all degree requirements. The Candidacy for the Degree of Master form can be found online at: http://www.gradstudies.ucdavis.edu/forms/. A completed form includes a list of courses the student will take to complete degree requirements. If changes must be made to the student’s course plan after s/he has advanced to candidacy, the Graduate Adviser must recommend these changes to Graduate Studies. Students must have their Graduate Adviser and thesis committee Chair sign the candidacy form before it can be submitted to Graduate Studies. If the candidacy is approved, the Office of Graduate Studies will send a copy to: the Thesis Committee Chair, the appropriate graduate staff person, and the student. If the Office of Graduate Studies determines that a student is not eligible for advancement, the department and the student will be told the reasons for the application’s deferral. Some reasons for deferring an application include: grade point average below 3.0, outstanding “I” grades in required courses, or insufficient units.

8) Comprehensive Examination and Thesis Requirements:

a) Thesis Requirements (Plan I): A written outline of the research project shall be submitted to the thesis committee. This outline will include critical evaluation of the methods and their limitations plus a full description of experimental design, protocols, and data analysis. Consultations should occur at reasonable time intervals between the candidate and the thesis committee meeting as a group. The M.S. thesis in MCIP should be:
• A scholarly piece of experimental research
• Rigorous in approach (design, methodology, and analysis), but not as extensive as a Ph.D. dissertation.

b) **Comprehensive Examination (Plan II):** The M.S. comprehensive examination shall:

• Be oral;
• Determine the general knowledge and understanding that the candidate possesses in both cellular and systemic physiology, such that the candidate is judged competent to teach introductory physiology courses;
• The M.S. degree Plan II is considered a terminal graduate degree in MCIP at U.C. Davis.

The results of all examinations must be reported to Graduate Studies using the Master’s Report Form ([http://www.gradstudies.ucdavis.edu/forms/](http://www.gradstudies.ucdavis.edu/forms/)). Please note that when students take the exam, they must be registered or in current filing fee status.

9) **Typical Time Line and Sequence of Events:**

**First Year, Fall Quarter**
- MCP 210A – core course part 1 (4 units)
  - “Cellular” Physiology
- MCP 291D – Intro to Research (2 unit)
- GGG 296 – Scientific Integrity (2 unit)
- Optional Adviser approved elective courses

**First Year, Winter Quarter**
- MCP 210B – core course part 2 (6 units)
  - “Systemic” Physiology
- Optional elective courses

**First Year, Spring Quarter**
- MCP 210C – core course part 3 (5 units)
  - “Systemic” and “Comparative” Physiology
- 290 seminar (1 unit)
- Elective courses (Must be adviser approved)

**Second Year**
- Courses as needed to complete requirements
- Begin exam preparation/take exam by Spring of 2nd year, or submit Thesis

10) **Planned Educational Leave Program (PELP) and Filing Fee status.**

Information about PELP (Planned Educational Leave) and Filing Fee status can be found in the Graduate Student Handbook: [http://www.gradstudies.ucdavis.edu/students/handbook/1.html](http://www.gradstudies.ucdavis.edu/students/handbook/1.html)
Ph.D. Degree Requirements

1) Admissions requirements: The applicant’s academic achievement must conform to the standards specified by Graduate Studies for graduate study.

   a) Prerequisites:

   Physics: One year of General Physics with laboratory or equivalent content, e.g. PHY 7A, 7B, 7C.

   Chemistry:
   1) General Chemistry: One year of General Chemistry with laboratory or equivalent content, e.g. Chemistry 2A, 2B, and 2C.
   2) Organic Chemistry: Two quarters of Organic Chemistry with laboratory or equivalent, e.g. Chemistry 8A and 8B.
   3) Introductory Biochemistry: Two quarters of Biochemistry or equivalent content, e.g., BIS 102 and 103.
   4) Biochemistry or Cell Biology laboratory: One quarter of Biochemistry or cell biology laboratory or equivalent content, e.g., MCB 120L or NPB 104L

   Mathematics: One year of Analytical geometry and calculus or equivalent content, e.g. Math 16A, 16B, 16C

   Statistics: One course in Introduction to Statistics or equivalent content, e.g., Statistics 13

   Biology: One year of General Biology or equivalent content, e.g. BIS 1A, 1B, and 1C.

   b) Deficiencies: Students requiring more than two courses to remedy deficiencies in the above requirements will not normally be admitted. Course work deficiencies should be made up by the end of the first academic year following initial enrollment by earning a letter grade of “B” or better.

2) Dissertation Plan:

   Plan B. Specifies a three member (minimum) dissertation committee, an optional final oral examination (made on an individual student basis by the dissertation committee), and an exit seminar is required.

3) Course Requirements:
   a) Core courses

   • Core Course in Physiology (MCP 210 A,B,C, fall, winter, spring, respectively) [15 units]
   • Physiology Laboratory Rotations (MCP 210L fall) [5 units]
   • Structural/Molecular Biology: One course [1-9 units]
• Statistics: Two courses [8 units]  (See attached “Classes that may satisfy MCIP requirements – pending advisor approval.”)
• Laboratory: One course (can co-satisfy Area of Specialization course or Structural/Molecular Biology course) [1-9 units]
• Area of Specialization (cardiorespiratory, cellular, comparative, endocrinology, exercise, neurophysiology, reproductive, and systemic): three courses approved by the academic adviser, equivalent to 9 quarter units, two of those courses being graduate level
• Science Integrity (GGG 296), (fall) [2 units]
• Physiology: Introduction to Research (MCP 291D, fall) [2 units]
• Topical Seminars (various 290), Four courses, usually taken one per quarter until the Qualifying Examination is passed [4 units]

b) Elective Courses

• See above under area of specialization where students can select courses and also in the Laboratory and Structural/Molecular Biology courses

c) Summary

• Total units required: 38-54 units with 34 graduate units and the remainder being upper division units. A minimum course load is 12 units each academic quarter.
• Research and Dissertation: The doctoral dissertation, an original research project in physiology, must be completed under the guidance of a major professor who is a member of the Molecular, Cellular and Integrative Physiology Graduate Group. A dissertation committee of the major professor and two or three other faculty provides guidance and approves the completed dissertation. The principal objective of the doctoral program is completion of a scholarly dissertation.

4) Special Requirements:

• Students in the core course must receive a grade of B- or better to satisfy the core course requirements.
• All Ph.D. students must serve as teaching assistants (TAs) in two appropriate physiology laboratory courses prior to taking the Qualifying Examination
• Prior to the Qualifying Exam, students are required to present at the Molecular, Cellular and Integrative Physiology Graduate Group Research Colloquia at least once before graduation
• Please be aware of the nine-quarter rule regarding employment (Directive #92-122 from the Office of Graduate Studies, July 21, 1992).

5) Committees:

a) Admission Committee

Once the completed application, all supporting material, and the application fee have been received, the application will be submitted to the Admissions Committee. The Admissions Committee consists of a minimum of three graduate group faculty and one graduate group student. Based on a review of the entire application, a recommendation
is made to accept or decline an applicant’s request for admission. That recommendation is forwarded to the Dean of Graduate Studies for final approval of admission. Notification of admissions decisions will be sent by Graduate Studies. Applications are accepted through January 15 of the previous year for the next Fall entering class.

b) Course Guidance or Advising Committee:
Students will be assigned a Graduate Adviser who will help plan an appropriate program of instruction. The adviser is also available for general counsel and guidance concerning the Molecular, Cellular and Integrative Physiology Graduate Group and University requirements for the designated degree and will interpret the rules and policies of Graduate Studies and the Molecular, Cellular and Integrative Physiology Graduate Group as they apply to the student’s specific area. There is a minimum 12 unit requirement per quarter rule for full time students. These 12 units can be made up of required courses and 299s.

c) Examination Committee:
Eligibility: A Molecular, Cellular and Integrative Physiology (MCIP) student must pass the oral qualifying exam (QE) prior to advancement to candidacy for the Ph.D. To be eligible for the exam, the student must have completed all MCIP courses, teaching expectations, and colloquium requirements earning a B- or better in the core courses, removed any deficiencies on the transcript, and be in good academic standing. The student must be a registered student during the quarter in which the QE is taken.

The primary purpose of the Qualifying Examination (QE) is to evaluate the student’s competence in physiology as a whole and the student’s chosen area of specialization in particular. The QE should determine that the student has acquired sufficient knowledge in breadth and depth to be conversant with the general principles of physiology thereby enabling the integration of those principles around a physiological question or concept. The examination should confirm that the student is academically qualified to conceptualize a research topic, undertake scholarly research and successfully produce the dissertation required for a doctoral degree. The QE will emphasize integration of learned concepts and not recitation of facts although knowledge of facts underpins the ability to integrate. The student will also present a dissertation research proposal with the purpose of demonstrating that the student can identify a significant question in physiology that includes demonstration that the student has completed a literature review of that topic, has identified a set of achievable goals and has designed appropriate experimental approaches to accomplish those goals. The dissertation research component of the exam is meant to be a proposal and not a research progress report and therefore, no data are expected. The student's previous academic record, performance on specific parts of the examination, and overall performance and potential for scholarly research will be evaluated in determining the outcome of the examination.

The qualifying examination committee will consist of five faculty members, at least four of whom are members of the Molecular, Cellular and Integrative Physiology Graduate Group. The major professor and close collaborators will be excluded from serving on the student’s QE. The Chair of the QE committee is expected to ensure that the student receives a fair examination. In assigning the QE committee, the area of the student's dissertation research will be considered such that at least one individual with
expertise in this area is a member of the QE committee. The major professor and student should prepare a list of suggested examiners for the qualifying examination committee. They should indicate whom they recommend to chair the committee and then that list will be submitted to the MCIP Graduate Program Assistant. The Committee on Educational Policy (CEP) will formalize the QE committees for all second year students in Winter quarter from the suggested lists. However, it should be understood that CEP’s selections are also guided by the need to ensure representative participation of all group members.

For each student, the names of the proposed QE committee members are given to the Group Graduate Program Assistant who will contact the proposed members to inquire if they are willing to serve on the student’s committee. The faculty will have approximately 7-10 days to respond to this inquiry. Once availability and willingness to serve has been established, the Program Assistant fills out the Application for QE and sends it to the student’s Graduate Adviser. The Program Assistant will notify the student of the prospective composition of the QE committee. Upon notification of the prospective committee, the student may begin scheduling the QE. The Graduate Adviser will sign the Application for QE when the student has completed the program requirements as noted above and then return the signed form to the Program Assistant who submits the application to Graduate Studies after retaining a file copy. Graduate Studies verifies that each proposed member is qualified to sit on the committee and the Graduate Council Chair has the final approval of committee membership in accordance with Graduate Council policy (DDB 80, Graduate Council, B.1.). MCIP has been granted an exception to the policy requiring an outside member of the Group be on the QE Committee (July 2006). Upon approval from Graduate Studies on the QE committee membership, the Program Assistant will send a formal letter to the student and the committee members from CEP regarding the format of the exam and the committee responsibilities. The Program Assistant will also enclose a copy of the student’s transcripts in the letter to the QE committee chair. Graduate Studies will send a letter to the chair of the committee giving information on how to report the exam outcome, the reporting forms, and a list of the constituted committee.

**Scheduling of the QE:** The QE is to be completed within one quarter after completion of coursework. For most students, the Graduate Group expects the QE will be completed by the end of Fall quarter of their third year, however, the QE must be completed before the end of Spring Quarter, year three. Graduate Studies will send a copy of the approved QE application and a letter stating that it is the student’s responsibility to coordinate with committee members, including the scheduling of the QE. It is also recommended that the student arrange to meet with each committee member to discuss matters concerning the examination. The student is responsible for updating his/her adviser on the progress of this activity. The recommended time it takes for the student to prepare for the exam is about 3 months.

**Format of the QE:** The qualifying examination will be administered on a chalk/white board only. The exam should last no longer than 3 hours. The qualifying examination must include **both** of the following components (detailed below) with a greater proportion on the core and specialization areas emphasizing the integration of physiology in the student’s area of emphasis:
A) a dissertation research proposal
B) an examination on the core physiological subject areas and specialization.

A) For the dissertation research proposal component, students will be expected to submit a written dissertation proposal to their committee at least one week prior to the oral QE. The goal of the dissertation research proposal is to provide a substantial and original contribution to the field of molecular, cellular and integrative physiology. The format should be similar to that of an NIH postdoctoral fellowship proposal. Organize sections of the research proposal to answer these questions: (1) Specific aims (State briefly the broad, long-term objectives of the work. Then state the specific purposes of the proposed research) (2) Background and significance. Why is the work important? Critically evaluate existing knowledge, and identify the gaps that the project is intended to fill. State concisely the importance of the proposed research by relating the specific aims to the broad, long-term objectives (3) Preliminary studies and/or research design and methods (Outline the experimental design and the procedures to be used to accomplish the specific aims. Include the means by which data will be collected, analyzed and interpreted. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures along with alternative approaches to achieve the aims. Provide a tentative sequence for the investigation.) (4) References. The total length should not exceed 5 pages for all sections. While students are encouraged to meet with their QE committee, students should not ask for, nor should the committee members provide, comments on weaknesses, potential problems and errors in the research proposals. The actual presentation of the proposal is to be extemporaneous and actual data are not required.

B) The intent of the QE is to determine that the student has acquired sufficient knowledge in breadth and depth to be conversant with the general principles of physiology. The student should be able to integrate those principles around a physiological question or concept. The individual committee members’ questioning on the core physiological subject areas and specialization should emphasize the integration of concepts learned through coursework rather than a restatement of facts already examined during the student’s coursework. The QE chair is obligated to ensure that QE committee evaluates the student’s capacity to integrate physiological principles. Prior to the QE, the committee will meet as a whole to coordinate the questioning of the student and clarify expectations during the exam. Because MCIP faculty may not be proficient in devising integrative questions, annual mandatory workshops will be offered through MCIP to detail the committee expectations prior to, and during, the QE, including assistance in methods to develop integrative questions. All assigned QE faculty will be expected to attend an annual workshop in order to provide uniformity across the QE’s.

Qualifying Examination Evaluations. As noted above, the student's previous academic record, performance on specific parts of the examination, and overall performance/potential for scholarly research will be evaluated in determining the outcome of the examination. There are three possible outcomes of the examinations - pass, not pass, and fail. Pass advances the student to candidacy for the Ph.D. Fail means that the student is disqualified. Not pass means that the student is required to retake all
or part of the examination OR to satisfy another requirement. If requested, the second examination is to be scheduled at the earliest possible date and will be administered by the same committee. Satisfactory completion of this examination (or completion of the new requirement) will result in Advancement to Candidacy. Failure will result in disqualification. Note: To officially advance to candidacy, a fee must be paid to the Cashiers Office and the fully endorsed Advanced to Candidacy Petition can then be submitted to Graduate Studies.

Refer to the Graduate Council website for additional details regarding the Doctoral Qualifying Examination at:

6) Advising Structure and Mentoring:

The Major Professor is the faculty member who supervises the student’s research and dissertation; this person serves as the Chair of the Dissertation Committee. The Graduate Adviser, who is nominated by the Chair of the program and appointed by the Dean of Graduate Studies, is a resource for information on academic requirements, policies and procedures, and registration information. The Mentoring Guidelines can be found at http://www.gradstudies.ucdavis.edu/gradcouncil/mentoring.pdf.

7) Advancement to Candidacy:
The student is eligible for Advancement to Candidacy after successful completion of all graduate program degree requirements and after passing the Qualifying Examination. Before advancing to candidacy for a doctoral degree, a student must have satisfied all requirements set by the graduate program, must have maintained a minimum GPA of 3.0 in all course work undertaken (except those courses graded S or U), and must have passed a Qualifying Examination before a committee appointed to administer that examination. The student must file the appropriate paperwork with the Office of Graduate Studies and pay the candidacy fee in order to be officially promoted to Ph.D. Candidacy.

8) Dissertation requirements:
Information regarding the submission of your dissertation to the Office of Graduate Studies may be found at:
http://www.gradstudies.ucdavis.edu/students/degree_candidates.html

9) Normative Time to Degree:
• Normative Time to Advancement to Candidacy: Seven quarters (six quarters to complete course work and one quarter to prepare and pass qualifying exam).
• Normative Time in Candidacy: Eleven quarters
• Total Time to Degree: 6 years

10) Typical Time Line and Sequence of Events: Normally a student will complete course and teaching requirements during the first two years of the program, pass an oral Qualifying Examination given by five faculty members, then conduct and complete the dissertation research under the direction of a major professor, who serves as a research mentor. A committee approves the dissertation, and the student submits a dissertation to Graduate Studies to complete the degree.
First Year, Fall Quarter
MCP 210A – core course part 1 (4 units)
“Cellular” Physiology
MCP 291D – Intro to Research (2 units)
GGG 296 – Scientific Integrity (2 units)
MCP 210L - Laboratory Rotation (5 units)
Optional Adviser approved courses that meet degree requirements

First Year, Winter Quarter
MCP 210B – core course part 2 (6 units)
“Systemic” Physiology
MCP 210 L - Laboratory Rotation (optional)
Optional Adviser approved courses that meet degree requirements

First Year, Spring Quarter
MCP 210C – core course part 3 (5 units)
“Systemic” and “Comparative” Physiology
290 seminar (1 unit)
Rotations or begin work in major professor’s laboratory
Optional Adviser approved courses that meet degree requirements

Second Year
Adviser approved courses as needed to complete requirements
Teaching Assistantships
Begin qualifying exam preparation
Colloquium presentation

Third Year
Qualifying Exam – generally taken in summer or fall
Colloquium presentation

And beyond…
Dissertation research
Writing of Dissertation and Manuscripts

Planned Educational Leave Program (PELP) and Filing Fee status.
Information about PELP (Planned Educational Leave) and Filing Fee status can be found in the Graduate Student Handbook:
http://www.gradstudies.ucdavis.edu/publications/