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COMPARATIVE MEDICINE FACULTY AND RESEARCH INTEREST

1. Dr. Sherril Green, DVM, PhD  Professor – Comparative Medicine
   Chair, Department of Comparative Medicine  Director, Master of Science in Laboratory Animal Science Degree Program
   - Her research focuses on the biology and diseases of the African Clawed frog, *Xenopus laevis*.

2. Dr. Megan Albertelli, DVM, PhD  Assistant Professor – Comparative Medicine
   - Her research interests include genetic variation in breast and prostate cancers, as well as the development and refinement of mouse models of cancer and celiac disease.

3. Dr. Donna Bouley, DVM, PhD  Professor – Comparative Medicine
   - Her collaborative research interests include phenotypic characterization of genetically engineered mice, host-pathogen interactions, and pathology of minimally invasive cancer treatments.

4. Dr. Kerriann Casey, DVM  Assistant Professor – Comparative Medicine
   - Her collaborative research interests include cancer biology (including PDX and PDOX models), radiation oncology, and aging phenotypes.

5. Dr. Tom Cherpes, DVM, MD  Assistant Professor-Comparative Medicine
   - His research explores female genital tract immunity, immunomodulatory effects of hormonal contraceptives, and a cellular immunotherapy combating infectious disease and cancer.

6. Dr. Corinna Darian-Smith, PhD  Associate Professor – Comparative Medicine  Co-Director, Master of Laboratory Animal Science
   - She is primarily interested in questions relating to (1) the organization of central neural pathways involved in fine finger/hand control, and (2) the capacity of these sensorimotor pathways to compensate/adapt following localized injury.

7. Dr. Stephen Felt, DVM, MPH  Associate Professor – Comparative Medicine
   - His research interests include infectious diseases, particularly zoonoses, and exploring techniques which promote the health and welfare of laboratory animals.

8. Dr. Joseph Garner, DPhil  Associate Professor – Comparative Medicine
   - His research interests include the development of refined methods in behavioral research; abnormal behaviors in animals (including barbering and ulcerative dermatitis) and their relationships with abnormal behaviors in humans; mouse well-being and enrichment; and the scientific impact of well-being problems in lab animals.
9. Dr. Shaul Hestrin, PhD  
   Professor – Comparative Medicine  
   • His research centers around how the properties of neocortical neurons, the circuits they  
     form and the inputs they receive give rise to neuronal activity and behavior neurons as  
     well as cortical afferents.

10. Dr. Monika Huss, DVM  
    Assistant Professor – Comparative Medicine  
    • Her research interests include animal welfare, pain recognition, anesthesia and  
      analgesia.

11. Dr. Claude Nagamine, DVM, PhD  
    Assistant Professor – Comparative Medicine  
    • His research focuses on using mouse models to study murine and human infectious  
      diseases. These collaborative studies include dengue virus, adeno-associated virus,  
      Coxsackie virus, enterohepatic helicobacters, campylobacters, and anaplasma.

12. Dr. Cholawat Pacharinsak, DVM, PhD  
    Assistant Professor – Comparative Medicine  
    • His research focuses on understanding the neurobiology of cancer pain,  
      chemotherapeutic- induced peripheral neuropathy, acute surgical pain models, and  
      methods to improve clinical pain management e.g. sustained release analgesics  
      supporting refinement.

13. José G. Vilches-Moure, DVM, PhD.  
    Assistant Professor – Comparative Medicine  
    • His collaborative research interests include cardiac development and pathology,  
      developmental pathology, and refinement of animal models in which to study early  
      cancer detection techniques.
GETTING STARTED

Axess (Registration and Enrollment)

Axess is a student information system available via the web. It is generally available 24 hours a day, 7 days a week. You will need your user ID and password to login to Axess.

Using Axess, you can:

1. File or adjust your study list and elect grading options
2. Review your grades
3. Request an official transcript
4. Print a history of your courses and grades (i.e., unofficial transcript)
5. Apply to graduate
6. Update your address (e.g., mailing, permanent, campus P.O. Box), and personal email address.
7. Apply for housing
8. View financial aid information
9. Pay your university bill
10. View advisor information

Important Points:

- Please make sure to carefully read the university’s policies regarding Registration, Enrollment and Academic Progress on the Graduate Academic Policies and Procedures (GAP) Handbook website.

- Students are also strongly encouraged to bookmark or print a copy of Stanford’s Academic Calendar in order to meet the university’s enrollment deadlines (e.g., study list deadline, change of grading basis deadline, withdrawal deadline, etc.)
TUITION RATES

Regular quarterly tuition for the academic year 2017-18, payable Autumn, Winter, and Spring quarters.

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate 11-18 units</td>
<td>$16,329</td>
</tr>
<tr>
<td>Graduate 8,9,10-unit rate</td>
<td>$10,620</td>
</tr>
<tr>
<td>Each graduate unit above 18</td>
<td>$1,089</td>
</tr>
<tr>
<td>TGR (Terminal Graduation Registration)</td>
<td>$3,186</td>
</tr>
<tr>
<td>Graduation Quarter</td>
<td>$150</td>
</tr>
</tbody>
</table>

Stanford tuition rates and special tuition rates can be found on the University Registrar’s page. [https://registrar.stanford.edu/students/tuition-and-fees](https://registrar.stanford.edu/students/tuition-and-fees)
DEGREE PROGRESS

General Description of Programs

The profession of laboratory animal science or management demands a strong foundation in science and mathematics, a broad knowledge of research techniques, and an understanding of the relation between medicine and society. Curricula at Stanford are planned to offer the breadth of education and depth of training necessary for leadership in the profession. To engage in this profession with competence, at least one year of postgraduate study are recommended. For those who plan to work in highly technical development or fundamental research, additional graduate study is desirable.

Master of Science

The master’s degree program provides advanced preparation for professional practice or preparation for additional graduate work. The Master’s degree is offered as a full-time or part-time program, and consists of 45 units. The average length of time it takes students to complete the full-time program is 5 quarters, excluding summer. Students in the full-time program must complete the degree within 3 years (2 years if on a student visa). The average length of time it takes students to complete the part-time program is 3 to 5 years. The department does not prescribe specific courses to be taken but it does provide guidelines for acceptable programs. Each student, with the help of a faculty advisor, prepares an individual program of study. There is a thesis/business plan requirement.

MLAS Academic Requirements

Each student, with the help of their faculty advisor, prepares a program of study that meets his or her particular area(s) of interest. Word of Advice: New students are strongly advised not to undertake a heavy academic program in their first quarter at Stanford, as they are adjusting to their new environment and the demanding nature of graduate work. Three regular courses (8-10 units) constitute a full-time workload. The student's advisor should be consulted for further guidance on this and other course selection questions.

Every student in the MS degree program must submit a Program Research Proposal form prior to the end of the second quarter of enrollment. The Program Proposal must be approved by the student's faculty advisor and be submitted to the Compmed Student Coordinator by the stated deadline. Students who do not submit a Program Proposal on time will have an enrollment hold placed on their record until they submit an acceptable proposal.
**Important Points:**

- The University’s minimum requirement for each master's degree is 45 unduplicated units of coursework done at Stanford. Stanford does not accept transfer credit toward a master’s degree.

- Students must maintain a minimum cumulative GPA of 3.0 in order to maintain good academic standing and graduate with the MLAS degree.

- Every student should be familiar with the University’s requirements for minimal progress as outlined in the Graduate Academic Policies and Procedures (GAP) handbook.

- In your final quarter, you must apply to graduate in Axess by the deadline published in the Academic Calendar.

**Comparative Medicine Graduate Level Courses**

**Figure 2: Comparative Medicine Graduate Level Courses**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Course Instructor</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compmed 200</td>
<td>One Health Journal Club</td>
<td>Shaul Hestrin</td>
<td>1</td>
</tr>
<tr>
<td>Compmed 202</td>
<td>Research Biomethodology for Laboratory Animal Science</td>
<td>Cholawat Pacharinsak &amp; Monika Huss</td>
<td>2</td>
</tr>
<tr>
<td>Compmed 207</td>
<td>Comparative Brain Evolution</td>
<td>Paul Buckmaster; Corinna Darian-Smith</td>
<td>4</td>
</tr>
<tr>
<td>Compmed 209</td>
<td>Laboratory Animal Medicine Seminar</td>
<td>Steve Felt</td>
<td>2</td>
</tr>
<tr>
<td>Compmed 210</td>
<td>Introduction to Mouse Histopathology</td>
<td>Donna Bouley; Jose Vilches-Moure</td>
<td>3</td>
</tr>
<tr>
<td>Compmed 211</td>
<td>Biostatistics for the Life Sciences</td>
<td>Joseph Garner</td>
<td>2</td>
</tr>
<tr>
<td>Compmed 260</td>
<td>Masters Laboratory Animal Science Practicum/Laboratory Research</td>
<td>Various</td>
<td>1-15</td>
</tr>
<tr>
<td>Compmed 290</td>
<td>Career Development</td>
<td>Various</td>
<td>1-6</td>
</tr>
</tbody>
</table>
Student Advisors

How do students find advisors?

Students are encouraged to study the DCM website to identify potential faculty advisors and areas of research interest. Steve Choy arranges for prospective applicants to speak with the faculty member of interest or with one of the program directors. Because the MLAS program timeline is accelerated, it is imperative that newly admitted students identify an advisor in a timely fashion.

Many of the Stanford co-terminus applicants have been enrolled in a DCM faculty undergraduate or graduate level course and have identified their advisor though that experience. New students otherwise spend 2-3 weeks in a DCM faculty member’s lab (up to 2-3 faculty selected by the student), to experience the lab’s culture, the ongoing research projects and to meet the people.

Once the student and the faculty advisor are matched, an individual development plan (IDP) is prepared, the student and their advisor then meet with the Faculty Advisory committee to review the proposed program plan.

How do they change advisors?

In the event that the student needs to change advisors, they must contact the MLAS Co-director(s), either Sherril Green and/or Corinna Darian-Smith, who can assist them with the transition and facilitate the process (to date no student has requested to change advisors).

How does the program tailor advising to different stages in the students’ career?

This is a 1.5-2 year study program. Students entering the program are usually early in their academic career and have variable backgrounds in research, STEM courses and laboratory animal science. The MLAS faculty advisory committee, along with the student’s advisor, tailor the study program based on the career goals of individual student and the expertise required to successfully complete their thesis research project and achieve their professional goals. The course of study is determined at the start of the student’s program, usually by the end of the first quarter of enrollment. The advisor and the student meet quarterly to review the student’s IDP (these meetings are prompted by Steve Choy, who tracks each quarter that this meeting has been completed). Members of the MLAS FAC also meet quarterly with each student and advisor. This is necessary, given accelerated time-frame most students have chosen to complete the program. Students may desire to tailor course work based on advances in their thesis project or the need to acquire additional relevant knowledge or technical skill given their career goals.

MLAS Student Milestones

Each student is required to meet with the MLAS faculty advisory committee on a quarterly basis to review their academic degree progress and progression with their research or business plan. Students are encouraged to meet regularly with faculty mentors. (See Figure 3)
### Figure 3: MLAS Milestones and Student Expectations

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Tasks</th>
<th>Research</th>
<th>Courses</th>
<th>Teaching</th>
<th>Internship</th>
</tr>
</thead>
</table>
| 1st     | ● Take required classes  
          ● Choose research mentor  
          ● Identify project and complete IDP | 40% | 60% | 0% | 0% |
|         |       | 2 lab rotations  
          1st MLAS FAC1 meeting | MLAS Core Coursework  
          Faculty research presentations  
          Monthly Departmental Meetings  
          Attend Scientific Conference | Not Required | Not Required |
| 2nd     | ● Complete required and elective classes  
          ● Complete IDP with faculty advisor  
          ● Submit TGR form in 3rd or 4th quarter | 60% | 30% | 5% | 5% |
|         |       | Thesis Research  
          2nd MLAS FAC Meeting | Faculty research presentations  
          MLAS Core Coursework  
          Monthly Departmental Meetings | Teaching Assistantship | Student Internship |
| 3rd     | ● Complete required and elective classes  
          ● Complete IDP with faculty advisor | 65% | 25% | 5% | 5% |
|         |       | Present Thesis Research  
          3rd MLAS FAC meeting | MLAS Core Coursework  
          Faculty research presentations  
          Monthly Departmental Meetings | Teaching Assistantship | Student Internship |
| 4th     | ● Submit Terminal Graduation Quarter Petition  
          ● Complete IDP with faculty advisor | 65% | 25% | 5% | 5% |
|         |       | MLAS Project Research  
          4th MLAS FAC meeting | MLAS Core Coursework  
          Faculty research presentations  
          Monthly Departmental Meetings | Teaching Assistantship | Student Internship |
| TGR2    | ● Submit Graduation Quarter Petition | 85% | 5% | 5% | 5% |
|         |       | MLAS Project Research  
          5th MLAS FAC meeting | Student Thesis Research Presentation  
          Submission of Thesis MLAS FAC | Teaching Assistantship | Student Internship |
| Grad Quarter3 | ● Submit Graduation Petition | 90% | 0% | 0% | 10% |
|         |       | MLAS Project Research  
          Final MLAS FAC meeting | MLAS Thesis Review-  
          Final meeting with MLAS FAC | Not Required | Student Internship |

7 MLAS FAC = Master Laboratory Animal Science Faculty Advisory Committee  
2 TRG Terminal Graduation Quarter - 5th quarter of MLAS program. TGR tuition status allows students to enroll in classes to complete remaining degree requirements.  
3 Graduation Quarter – optional 6th quarter of MLAS program. Students enrolled in Graduation Quarter have completed degree requirements, but still need to submit thesis.
A Guide to Your MLAS Thesis Project Proposal

Completion of a research project and thesis is an essential component of the master’s program. The focus of the research would allow students to 1) integrate the principles of laboratory animal science that they learned in core courses and, 2) to demonstrate knowledge and advanced training in a focused area related to laboratory animal science. The MLAS student’s thesis project should consist of hypothesis-driven, original research that advances the field, develops or refines an animal model or contributes new knowledge regarding basic understanding of research animal husbandry, biology, physiology, behavior or well-being.

As an MLAS graduate student, you will work with your advisor to prepare a thesis project proposal. The proposal will be reviewed at the first MLAS Faculty Advisory Committee (FAC) meeting that typically occurs at the end of your first quarter of enrollment.

The thesis proposal should be written as a Word document, in 11 or 12 pt. font, Times New Roman (1 inch margins) and should not be longer than 5 pages. The proposal should contain the following:

1. Title, with your name and your advisors name, date
2. Background and significance
3. Objectives: list your specific aims
4. Methods (how will you achieve your specific aims, include statistical analysis)
5. Budget
6. Proposed Timeline to Completion (describe the project milestones and which quarters you will complete them)
7. Bibliography

Remember, this will be a draft proposal. It will likely evolve and be revised after you meet with the FAC and as you progress through your program.

Typically, you will need your advisor’s help and guidance with your thesis proposal (don’t go it alone—this is a first for many of you). Expect to have many sessions with them as you prepare your proposal.

If they are unavailable, feel free to contact Dr. Green. She will answer any questions about formatting, revising, budgets, or anything else.
Final MLAS Thesis Project Order and Content

The MLAS faculty advisory committee expects that students submit their final project in the following format.

1. Preliminary Pages
   1. Title Page
   2. Abstract.
   3. Preface and/or Acknowledgments.
   4. Table of Contents, with page references.
   5. List of Tables, with titles and page references.
   6. List of Illustrations, with titles and page references.

2. Text
   1. Introduction.
   2. Main body, with the larger divisions and more important sub-divisions indicated by suitable, consistent headings.

3. References
   1. Appendices
   2. Bibliography or List of References.
Graduation Quarter Petition

Students must be registered in the term in which they have a degree conferred. Students who meet the following conditions are eligible to be assessed a special tuition rate for the quarter in which they are graduating.

There is currently a tuition fee of $150 for the Graduation Quarter; students will be assessed University health insurance (unless waived) and ASSU fees.

To be eligible for the reduced tuition rate, students must have:

- Completed all course work, degree requirements, and residency requirements.
- Enrolled in the applicable TGR 802 section for the graduation quarter. Students cannot enroll in any other courses for the quarter.
- Applied to graduate via Axess.
- Enrolled or been on an approved leave of absence in the term immediately preceding the requested Graduation Quarter.

Students on Graduation Quarter are registered at Stanford and, therefore, have the rights and privileges of registered students.

Only one Graduation Quarter may be requested for each degree program. Students who, for whatever reason, do not graduate during the Graduation Quarter will be assessed a higher, standard tuition rate in subsequent terms.

The Graduation Quarter Petition form can be found online: registrar.stanford.edu/pdf/grad_qtr.pdf

The form must be submitted to the Student Services Center by the first day of the quarter.
FINANCIAL SUPPORT

Teaching Assistantships/Course Development Assistantship
TA/ CDA in the Comparative Medicine department are available to students who have been at Stanford for at least one quarter. The student services coordinator can help students locate available TA positions.

Summer Internships

Summer Internships are available to all first year graduate students. Internship responsibilities must be separate from the focus of the student’s research/business plan. Student’s will have the opportunity to earn up to $5,000 during their internship experience. The total amount of may vary upon yearly externship allocation.

How Payroll Works

TAs receive a Stanford paycheck twice each month, on the same schedule as other university employees, and are subject to withholding of employment taxes with the exception of Social Security and Voluntary Disability Insurance.

Important Points:
- Every student who works at Stanford should submit an I-9 form prior to the start of their appointment. Please submit this form as soon as possible to the department’s Student Accounting Associate prior to the start of the quarter in which you will begin employment.

Taxes and Tax Reporting

Student employee pay is subject to federal and state income tax withholding and is reported on Form W-2. Work performed in California is subject to withholding and reporting to California, regardless of the residency status of the student. Registered degree-seeking students do not pay FICA (Social Security and Medicare) taxes and California Voluntary Disability Insurance.

For further guidance related to taxes, students should consult the Stanford Student Financial Services Tax Information website.
STUDENT TRAVEL

Prior to any MLAS travel, read the Stanford travel policy to review the reimbursement policies that are strictly enforced. 
http://web.stanford.edu/group/fms/fingate/students/when_travel/

Reimbursements

The following packet of back up paperwork should be submitted to the department administrator:

1. Student Certification Form – required by Stanford for any travel being funded by Stanford
2. Travel Request Form with your P.I or BMI Executive Director signature (person signing the form must identify the source of funding on the travel form or it will be returned to the student)
3. Spreadsheet of daily costs, including amounts
4. Electronic or print of airline receipt, including proof that you paid for it (Copy of credit card statement, Expedia receipt, etc., showing the amount with your name and method of payment.)
5. Boarding passes from the airline
6. Registration receipt, including proof that you paid for it
7. Lodging receipt
8. All original receipts for other purchases
9. Program of the conference

It takes 2 weeks for Stanford Financials to issue the reimbursement deposit. Students should enroll in direct deposit through AXESS.

Note: You may be reimbursed for the registration fee as soon as it is paid (prior to travel) and you submit the appropriate documentation. You may not be reimbursed for the other expenses until your return from the trip. Submit all documentation promptly. If submission is completed more than 60 days after travel, the reimbursement is taxable income.

Local Travel

Stanford policy is that conference or other travel to San Francisco, San Jose or other local cities less than 50 miles one way from Stanford does not qualify for overnight stay nor reimbursable meals.

Students may be reimbursed for mileage and parking or train fare (with receipt). Students will not be reimbursed for food or lodging, unless there is a particular circumstance. Please read the Travel Policy on the website and see the Student Services Coordinator if you have additional questions.

Consult with the Student Services Coordinator before you travel if you have questions about reimbursement policy.
HEALTH INSURANCE

Students who have insurance coverage from another source should fill out the INSURANCE WAIVER in Axess prior to the deadline.

Insurance coverage is carried through the summer. If you plan to graduate autumn or winter quarter, check with the Vaden Health Center about ending coverage.

Students are automatically enrolled in Cardinal Care during registered quarters unless health insurance is waived through Axess. If you intend to waive the Cardinal Care, do so BEFORE the deadline or you will be charged for health insurance!

Effective September 1, 2015, the 2015-16 Cardinal Care plan will include dental benefits, administered by Delta Dental of California. Students may visit any licensed dentist under this plan. For more information about the Delta plan, please visit the Vaden web site at (vaden.stanford.edu/insurance/dental).
RESIDENTIAL HOUSING

What are the new priorities and renewal eligibility for incoming master’s students in autumn 2017?

In general terms, the new priorities guarantee master’s degree students one year of housing in their first year of study at Stanford, on- or off-campus if they apply by the Lottery deadline and agree to live anywhere.

**Incoming master’s students (single and couples without children) enrolling in 2017-2018** will have guaranteed housing (on or off-campus) for their first year if they apply by the Lottery deadline and agree to live anywhere.

**Beyond the first year** they have no priority for subsidized housing (on or off campus). They are eligible to apply for the housing Lottery for one additional year and it is highly unlikely there will be available space in subsidized housing (on or off campus) until the new graduate housing opens in 2019.

**Incoming master’s students with children** will be guaranteed housing for the first year in their degree program, and have the option to renew in place in on-campus housing for a second year. Master’s students with children are eligible to apply for the housing Lottery for one additional year beyond their second year in housing, and it is highly unlikely there will be available space in subsidized housing (on or off campus) until the new graduate housing opens in 2019.

Additional Support for Graduate Students

The provost has increased central subsidies in the interim to assist graduate students who will be living off campus in 2016-17. Students living in off-campus housing may apply for the resources below:

- Housing Loan Program for those living in off-campus unsubsidized housing is available for graduate students to borrow up to $6,000 (all at once or in increments over several years); there are no fees and no interest if repaid within six months of graduation; new pilot program will be run by Karen Cooper in the Financial Aid Office with an estimated start date of May 1. [http://financialaid.stanford.edu/grad/funding/emergency](http://financialaid.stanford.edu/grad/funding/emergency)

- Free Caltrain Go Passes for graduate students living in subsidized or unsubsidized off-campus housing (must live in eligible zip codes), beginning Autumn Quarter 2016 until the new graduate housing opens in 2019

- Housing Assignments staff will continue to assist students in moving off campus, providing information on rentals and how to navigate the rental process.

- The Financial Aid Office has a need-based emergency grant-in-aid program for unanticipated expenses for which any graduate student may apply.
SUPPLEMENTAL ATTACHMENTS

A. Expectations of Faculty Advisors for MLAS Program
B. Expectations of MLAS Graduate Students
Supplemental Attachment A: Expectations of Faculty Advisors for MLAS Program
Supplemental Attachment B: Expectations of MLAS Graduate Students