Gro Vang Amdam
Spring 2022 - Spring 2026
Professor
gamdam@asu.edu

Personal Information

Country of Origin: Norway Languages: Norwegian, English

Preferred Personal Pronouns

she/her/hers

Contact Information

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Current Position

Position: Professor

Current Academic Rank: Professor

Faculty Rank: Professor

Biography

Gro Amdam is a Norwegian biologist who is internationally known for her research on honey bees and the functional roles of their Vitellogenin lipo-protein. Amdam received her MSc (1999) and PhD (2003) degrees at the Norwegian University of Life Sciences before moving to the U.S. to do postdoctoral work at the University of California, Davis. Professor Amdam has published more than 170 research articles and book chapters, and she has received several research awards, including the PEW Scholars Award in the Biomedical Sciences. Her research team investigates honey bee genetics, molecular biology, physiology and behavior to understand how honey bee colonies stay healthy, and how they evolved their advanced social behavior from ancestral solitary forms of life.

Amdam has three children (born 2013, 2016 and 2020). She is an advocate for parents who work toward their academic and career goals as ASU students and faculty.

Expert Areas

Genetics, Molecular Biology, Structural Biology, Physiology, Behavior, Animal Physiology & Behavior, Ecology, Genetics & Genomics, Honey bee behavioral physiology, Vitellogenin molecular properties and function, Student success, ASU charter, Future goals of faculty development, Socratic method

Degrees

2003	Doctor scientiarum, Theoretical Regulatory Biology, Norwegian University of Life Sciences
1999	Master of Science, Theoretical Regulatory Biology, Norwegian University of Life Sciences
1997	Bachelor of Science, Conservation Biology, Norwegian University of Life Sciences

Work Experience

Additional Activities

2015 - Ongoing

Associate faculty, Norwegian University of Life Sciences Senior Researcher Faculty of Ecology and Natural Resource Management, Norway

2012 - Ongoing

Professor, Arizona State University School of Life Sciences, Arizona, United States

2008 - 2015

Associate faculty, Norwegian University of Life Sciences Department of Chemistry, Biotechnology and Food Science, Norway

2007 - 2012

Associate professor, Arizona State University School of Life Sciences, Arizona, United States

2007 - 2008

Associate professor-II (20% term appointment), Norwegian University of Life Sciences Department of Animal and Aquacultural Sciences, Norway

2005 - 2007

Assistant professor (tenure-track), Arizona State University School of Life Sciences, Arizona, United States

2003 - 2005

Visiting researcher, University of California, Davis, Davis, California, United States

2003 - 2003

Associate professor (term appointment), Norwegian University of Life Sciences Department of Animal Science, Norway

1999 - 2000

Lecturer, Gjermundnes Agricultural College, Vikebukt, Norway

Awards / Honors / Fellowships

Jan 2026 - May 2026

Journal Cover

Journal of Economic Entomology, Is this award for research, instruction or service?: Research, Award Date: 2026-01-14,
Our cover image of honey bees on wax comb will be featured on the cover of this journal during 2026. A great honor. More details to follow.

Aug 2025 - Dec 2025

Journal cover illustrations (set of 6 illustrations)

Royal Entomological Society , Is this award for research, instruction or service?: Research, Award Date: 2025-10-15,
Our honey bee illustration is featured as the cover of the full 2026 volume series for the journal Insect Molecular Biology (IMB), by the Royal Entomological Society. The publisher wrote:

The cover for Insect Molecular Biology is a particularly interesting story; The image comes from the IMB winner of the 2023 ECR journal prize, Vilde Leipart, who created the image for her article on Resolving the zinc binding capacity of honey bee vitellogenin and locating its putative binding sites (IMB 31.6). The image was so spectacular that it was an easy choice for the editors. Vilde used a photograph from photographer Christofer Bang to create the image, and both Vilde and Christofer explain the fascinating process of putting the image together below.

Please see link for details: **https://www.royensoc.co.uk/news/new-year-new-journal-covers-2026/**

Vilde Leipart is my postdoc. It is a great honor that our illustration is featured on the cover of all the 6 issues of IMB in 2026.

ASU length of service award: 20 years

ASU, Is this award for research, instruction or service?: Service, Award Date: 2025-10-01,
At ASU, employee service is recognized in five-year increments of employment, such as 5, 10, 15, or 20 years, through over 50 years of service. I received my 20-years recognition in 2025.

Aug 2024 - Dec 2024

SUN Award
Sols Administration & Faculty, Catherine Mancini, Is this award for research, instruction or service?: Service, Award Date: 2024-11-19,
For spearheading an internal lab move with exemplary organizational leadership inclusive of green and zero waste visionary ideas. Also for presenting our team with the cleanest freezer to move that we have ever seen come out of a SOLS Lab.

Journal Cover illustration
Journal of Experimental Biology, Is this award for research, instruction or service?: Research, Award Date: 2024-09-03,
Cover: A honey bee (Apis mellifera) forager collecting nectar from an aloe flower in Tempe, Arizona. Worker honey bees exhibit complex, age-based division of labor where young workers remain within the nest, while older workers leave the nest to collect nectar and pollen to feed their nestmates. Scofield and Amdam (**jeb247777**) measured metabolic changes in worker fat body, the insect tissue filling the function of mammalian liver and adipose tissue. As workers age and become foragers, they suppress their capacity to synthesize lipids. Young workers deprived of dietary protein develop low, forager-like lipid synthesis capacity. Photo credit: Sebastian Scofield.

Annual Career Entomologist prize for Vol 31/2022 by Insect Molecular Biology
Is this award for research, instruction or service?: Research, Award Date: 2024-11-22,
Awarded on behalf of Professor Jane Stout, President of the Royal Entomological Society, and the Journal Editors-in-Chief. The award was for an article publise two years prior, which is due to the journal monitoring citations/downloads as a measure of impact before determining the winner. The award included a $200 prize given to the youngest/most junior author of the article, my postdoc Vilde Leipart.

Jan 2023 - May 2023

Nominated: FEBS Open Bio Article Prize 2023.
FEBS Open Bio, Is this award for research, instruction or service?: Research,
My senior author article Structure prediction of honey bee Vitellogenin: a multi-domain protein important for insect immunity (2022) was nominated and shortlisted by the Editorial Board for the FEBS Open Bio Article Prize 2023. The prize is given to an article of special interest and unique quality. The award amount goes to the junior scientist/s on the author team (typically PhD student/s).

Professor of Impact Award

ASU, Is this award for research, instruction or service?: Teaching,
Professor of Impact Award, 4th May 2023. Awarded for inspirational instruction, BIO360 Animal Physiology.

Sun Award
ASU, Is this award for research, instruction or service?: Teaching,
Sun Award, 28th April 2023. Awarded for outstanding student mentoring, English 105 Daedalus Project.

Jan 2022 - May 2022 Journal Cover illustration
FEBS OpenBio, Is this award for research, instruction or service?: Research, Location (City, Country): Virtual, https://febs.onlinelibrary.wiley.com/doi/epdf/10.1002/2211-5463.13360

Professional Licensures and Certifications

Human Research IRB - Social & Behavioral Research, October 2022, September 2026, CITI Program, https://www.citiprogram.org/verify/?w7fcd4d83-2802-482e-8dbf-cbf228f312cd-27912728, ASU provides IRB (Institutional Review Board) training through a third-party called CITI Program. All researchers and study team members conducting human subjects research at ASU must complete training before being approved to work on a project.

Credit-bearing Instruction

Date	Course Prefix	Course Number	Section	Course Title	Instructor Credit Hours	Instruction Mode	Maximum Enrollment	Enrollment	Course: Academic Career Level	Course: Enrollment by Instructor	Course: Instructor Role
Aug 2025	BIO	492	60261	Honors Directed Study	3	In Person	70	63	UGRD	2	PI
Aug 2025	BIO	494	67189	Special Topics	2	In Person	21	16	UGRD	16	PI
Aug 2025	BIO	495	62481	Undergraduate Research	3	In Person	190	171	UGRD	1	PI
Aug 2025	BIO	598	67125	Special Topics	2	In Person	8	8	GRAD	8	PI
May 2025	BIO	360	48980	Animal Physiology	3	Online	240	184	UGRD	184	PI
May 2025	BIO	360	48981	Animal Physiology	3	Online	110	91	UGRD	91	PI
May 2025	BIO	361	42418	Animal Physiology Laboratory	2	Online	100	48	UGRD	48	PI
May 2025	BIO	361	42419	Animal Physiology Laboratory	2	Online	50	14	UGRD	14	PI
May 2025	BIO	495	40538	Undergraduate Research	3	Online	30	1	UGRD	1	PI
Jan 2025	BIO	360	18746	Animal Physiology	3	Online	225	128	UGRD	128	PI
Jan 2025	BIO	394	16569	Special Topics	1	In Person	25	7	UGRD	7	PI
Aug 2024	ANB	602	71574	Current Issues In Behavior	1	In Person	10	9	GRAD	9	PI
Aug 2024	BIO	494	67957	Special Topics	2	In Person	21	15	UGRD	15	PI
Aug 2024	BIO	598	67878	Special Topics	2	In Person	8	7	GRAD	7	PI
May 2024	BIO	320	42152	Fundamentals of Ecology	3	Online	75	43	UGRD	43	PI
May 2024	BIO	320	42153	Fundamentals of Ecology	3	Online	175	148	UGRD	148	PI
May 2024	BIO	360	40393	Animal Physiology	3	Online	240	197	UGRD	197	PI
May 2024	BIO	360	42609	Animal Physiology	3	Online	100	79	UGRD	79	PI

May 2024	BIO	361	42684	Animal Physiology Laboratory	2	Online	100	69	UGRD	69	PI	
May 2024	BIO	361	42685	Animal Physiology Laboratory	2	Online	50	16	UGRD	16	PI	
Jan 2024	ANB	602	34301	Current Issues In Behavior	1	In Person	10	2	GRAD	2	PI	
Jan 2024	BIO	394	17189	Special Topics	1	In Person	25	14	UGRD	14	PI	
Jan 2024	BIO	495	12471	Undergraduate Research	3	In Person	200	179	UGRD	1	PI	
Jan 2024	BIO	498	36079	Pro-Seminar	2	In Person	22	4	UGRD	4	PI	
Jan 2024	BIO	591	36080	Seminar	2	In Person	8	3	GRAD	3	PI	
Aug 2023	BIO	493	70309	Honors Thesis	3	In Person	40	18	UGRD	1	PI	
Aug 2023	BIO	494	78702	Special Topics	2	In Person	21	16	UGRD	16	PI	
Aug 2023	BIO	495	72829	Undergraduate Research	2	In Person	175	160	UGRD	1	PI	
Aug 2023	BIO	598	78604	Special Topics	2	In Person	8	6	GRAD	6	PI	
Jan 2023	BIO	360	10028	Animal Physiology	3	In Person	335	268	UGRD	268	PI	
Jan 2023	BIO	361	10426	Animal Physiology Laboratory	2	In Person	16	14	UGRD	14	PI	
Jan 2023	BIO	361	10427	Animal Physiology Laboratory	2	In Person	16	16	UGRD	16	PI	
Jan 2023	BIO	361	11806	Animal Physiology Laboratory	2	In Person	16	15	UGRD	15	PI	
Jan 2023	BIO	361	11897	Animal Physiology Laboratory	2	In Person	16	13	UGRD	13	PI	
Jan 2023	BIO	361	12571	Animal Physiology Laboratory	2	In Person	16	15	UGRD	15	PI	
Jan 2023	BIO	361	12572	Animal Physiology Laboratory	0	In Person	16	14	UGRD	14	PI	
Jan 2023	BIO	361	12573	Animal Physiology Laboratory	0	In Person	16	16	UGRD	16	PI	
Jan 2023	BIO	361	12574	Animal Physiology Laboratory	0	In Person	16	15	UGRD	15	PI	
Jan 2023	BIO	361	14363	Animal Physiology Laboratory	0	In Person	16	13	UGRD	13	PI	
Jan 2023	BIO	361	14364	Animal Physiology Laboratory	0	In Person	16	15	UGRD	15	PI	
Jan 2023	BIO	394	17967	Special Topics	1	In Person	25	19	UGRD	19	PI	

Jan 2023	BIO	492	10099	Honors Directed Study	3	In Person	40	22	UGRD	1	PI	
Jan 2023	BIO	493	10100	Honors Thesis	3	In Person	150	68	UGRD	2	PI	
Aug 2022	ANB	602	84892	Current Issues In Behavior	1	In Person	10	2	GRAD	2	PI	
Aug 2022	BIO	492	70332	Honors Directed Study	3	In Person	70	60	UGRD	2	PI	
Aug 2022	BIO	494	79612	Special Topics	2	In Person	21	14	UGRD	14	PI	
Aug 2022	BIO	598	79497	Special Topics	2	In Person	8	4	GRAD	4	PI	
Jan 2022	BIO	360	10032	Animal Physiology	3	In Person	335	315	UGRD	315	PI	
Jan 2022	BIO	361	10461	Animal Physiology Laboratory	2	In Person	16	11	UGRD	11	PI	
Jan 2022	BIO	361	10462	Animal Physiology Laboratory	2	In Person	16	14	UGRD	14	PI	
Jan 2022	BIO	361	11911	Animal Physiology Laboratory	2	In Person	16	15	UGRD	15	PI	
Jan 2022	BIO	361	12012	Animal Physiology Laboratory	2	In Person	16	12	UGRD	12	PI	
Jan 2022	BIO	361	12013	Animal Physiology Laboratory	2	In Person	16	16	UGRD	16	PI	
Jan 2022	BIO	361	12755	Animal Physiology Laboratory	2	In Person	16	15	UGRD	15	PI	
Jan 2022	BIO	394	18842	Special Topics	1	Online	25	26	UGRD	26	PI	
					110		3632	2743		2013		

Term	Faculty Comments
Fall 2025	My Fall teaching load is smaller than Spring and Summer in terms of students enrolled. However, my BIO494/598 (joined line numbers) Genetics and Genomics of Behavior course includes considerable and additional student-facing work, including two 1h meetings with each student to assist them with preparing their in-class presentation, and weekly manual grading of 2-page hand-ins from each student. This is an intense course for the instructor, but it is very rewarding to teach. My BIO494/598 course has outstanding student evaluations, including 1.0 for my overall instructor rating. In Fall 2025, I also partnered with HON 394 Thesis Pathway class on technology ethics taught by Angela Rodriguez, Assistant Director, Lincoln Center Applied Ethics, ASU. This involved mentoring two undergraduate students toward their Honors thesis HON493, including serving as their Thesis Director. Details are provided under Mentorship and Student Success.
Summer 2025	Summer 2025 was my third time teaching BIO360 online, and my student evaluation of teaching was consistent with the improvments seen in the Spring 2025 semester. Specifically, my Summer BIO360 course score of 2.28 was well within 1 SD of the comparative mean for SOLS. I am so pleased with the progress, and I continue my efforts to meet students' expectations. For more details, please see my Summary for Student Evaluations of Teaching 2025 file that is uploaded in APARS.
Spring 2025	Spring 2025 was my second time teaching BIO360 online, and I am happy to report that my student evaluation of teaching improved significantly compared to Summer 2024. While my 2024 BIO360 Summer course score of 3.40 was well below the comparative mean, my 2025 BIO360 Spring course score of 2.08 was well within 1 SD of the mean.
Fall 2024	My lab was scheduled for an internal move this semester due to upcoming demolition and construction work in ISTB1. These events put some constraints on my time for grading and providing student feedback during parts of the semester, but I was able to avoid that my limitations affected the student experience. My Fall courses and teaching received excellent student evaluations.
Summer 2024	This was my first semester teaching ASU online courses. To prepare and receive assistance with course re-design and improvements, I met with SoLS Teaching and Learning Center staff weekly, starting in February 2024 and continuing through the summer sessions. Yet, despite my proactive approach and excellent support, two of my three online summer courses received student evaluations below the SoLS average for 300 level courses. I address my efforts to improve my online teaching in the Narrative, but want to underline here that I have reflected on the student feedback and implemented several changes for online BIO360, which I am teaching again in Spring 2025.

Spring 2024	I typically teach one large enrolment course in Spring semesters, but this semester was different. I was originally scheduled to teach BIO320 Fundamentals of Ecology (>100 students), but Tim Linksvayer needed a large enrollment course for this promotion portfolio. In conversation with faculty group leader and undergraduate administration, I was reassigned (last minute, in January 2024) from BIO320 to BIO498/BIO591 Sociobiology and BIO 394 Special Topics: Honors Project for Animal Physiology, which were new courses. This pivoting created some unique challenges with course planning and design, but I am happy to say that I pulled it off, and both courses received excellent student evaluations. I will go back to teaching a large enrollment course in Spring 2025.

Teaching: Learning Enterprise and External

Aug 2025 - Dec 2025	Norwegian University of Life Sciences (NULS), Environmental Sciences and Natural Resource Management, Best strategies for grant applications to the SFF program., I held a workshop for NULS faculty interested in applying for the Step 1 evaluation of The Research Council of Norway's Centres of Excellence (SFF) scheme. New or Revised Course: New Course, Course Delivery Method: Online, Contributors: Gro Amdam, Did participants earn continuing education credit: No, Instruction Type: Workshop [Other Teaching Role: Subject Matter Expert] [Student Collaborators: No]
Jan 2024 - May 2024	Kyrene de la Mirada Leadership Academy, Learning from honey bees, I taught a module about honey bees for 2nd graders. The session included a two-day visit with a honey bee colony (a glass observation hive) that had a "sleep-over" at the elementary school. The students received curiosity-driven materials on the first day to complete over the course of the day, and the next day I met with the classes to guide the students in finding the best answers. Number of Participants: 28, Instruction Type: Student Engagement, Does your unit consider this to be a Research, Service or Teaching Activity?: Service [Other Teaching Role: Instructor]
Jan 2023 - May 2023	ASU, Assisting SOLS faculty with settings and formatting of three-prong formats on Canvas-driven lecture hall exams, including taking referrals from the TLC team Number of Participants: 5 ASU, SOLS, I participated in and provided mentoring for the SOLS Ambassador program Number of Participants: 12, Does your unit consider this to be a Research, Service or Teaching Activity?: Service Kyrene la Mirada Leadership Academy, Inspired by Nature, I developed a K-12 outreach module for the Kyrene School District, called “Inspired by Nature”. This was a ½ day active learning activity centered on biomimicry in structural design, for 1st-4th graders. Number of Participants: 25 [Other Teaching Role: Guest Speaker/Lecturer]
Jan 2022 - May 2022	Kyrene la Mirada Leadership Academy, What bees do at home, I lead a curiosity driven session that combined a glass honey bee hive with a virtual lecture for elementary school children. The hive was delivered to the classroom, and the students could observe the bees for several days and develop questions. We next met by zoom and each student would ask a question for everyone to reflect on. I would guide the discussion and help students find answers. Number of Participants: 26, Instruction Type: Guest Lecture, Does your unit consider this to be a Research, Service or Teaching Activity?: Service [Other Teaching Role: Guest Speaker/Lecturer] [Student Collaborators: No]
Jan 2023 - Present	University of British Columbia Okanagan, I mentored the Canadian Okanagan iGEM team at the University of British Columbia Okanagan. iGEM is an international synthetic biology competition, where students find innovative solutions to problems. Instruction Type: Student Engagement, Does your unit consider this to be a Research, Service or Teaching Activity?: Service

Teaching: Curriculum Development

Jan 2025 - Dec 2025	Animal Physiology, Genetics and Genomics of Behavior, BIO360, BIO494/598, Undergraduate or Graduate Level: Undergraduate , General Studies Core Area: Natural Sciences (SQ / SG), I developed new assignments for my Animal Physiology and Genetics and Genomics courses. Much of these improvements were driven by my motivation to align course and assignment workability with AI-enhanced tools that students are regularly using. This area of instruction is moving very quickly, and I revised and updated assignments throughout the semesters and sessions to ensure that students could meet learning objectives. Does this apply to course or degree development?: Revised Course, Course Delivery: On-ground and Online, Does your unit consider this activity to be Research, Service or Teaching?: Teaching
Aug 2023 - Dec 2025	Undergraduate research, BIO495, Undergraduate or Graduate Level: Undergraduate , General Studies Core Area: Natural Sciences (SQ / SG), Worked with Susan Holechek and our co-mentored MS student Jessica Willis to develop a scalable undergraduate research experience in genetics that provides a service to Valley communities: DNA fingerprinting honey bee swarms to test for “killer bee” genetics. Does this apply to course or degree development?: New Course, Course Delivery: On-ground and Online
Aug 2023 - Dec 2024	Genetics, & Genomics of Behavior, Sociobiology, Fundamentals in Ecology, Current issues in Behavior/, BIO494/598, BIO320, BIO602, Undergraduate or Graduate Level: Both undergraduate and graduate, General Studies Core Area: Natural Sciences (SQ / SG), Revised all my curricula to synergize with the expanded use of AI, including assessment based on student reflection and creative activities. Does this apply to course or degree development?: Revised Course, Course Delivery: On-ground, Does your unit consider this activity to be Research, Service or Teaching?: Teaching

Jan 2024 - May 2024 Sociobiology, BIO498 and BIO591, Course Section Number: 36079 and 36080, ASU Unit: School of Life Sciences, Undergraduate or Graduate Level: Both undergraduate and graduate, General Studies Core Area: Natural Sciences (SQ / SG),

I developed this course on short notice after the original instructor was assigned to a different course. In Sociogenomics, we studied the conception, rise and potential fall of the research field of Sociogenomics. I developed a curriculum of peer review articles, a set of weekly active learning activities including discussion topics and questions, two quizzes/exams and four reflection assignments.

Does this apply to course or degree development?: New Course, Course Delivery: On-ground, Special Topic Course: No, Team Taught: No, Does your unit consider this activity to be Research, Service or Teaching?: Teaching

Aug 2022 - Dec 2022 Fundamentals of Ecology, BIO320 , Undergraduate or Graduate Level: Undergraduate , General Studies Core Area: Natural Sciences (SQ / SG),

I reviewed and assessed the full course contents including Canvas interface of BIO320 Fundamentals of Ecology to assess needs of revision or development. I will start co-teaching this course in the coming year (replacing my co-teaching of BIO360).
Does this apply to course or degree development?: Revised Course

Topic: Current Issues in Animal Behavior, ANB602, Undergraduate or Graduate Level: Graduate, General Studies Core Area: Natural Sciences (SQ / SG),

I developed and instructed a new version of this course. The course is a 1 credit unit required for graduate students in the SOLS animal behavior graduate program. The topic varies by year. My revision allowed for a focus on paradigm shifts in the study of animal behavior, which had not been covered previously.
Does this apply to course or degree development?: Revised Course, Does your unit consider this activity to be Research, Service or Teaching?: Teaching

Aug 2021 - Dec 2022 Healthy Habits for Bees, Undergraduate or Graduate Level: Elementary, General Studies Core Area: Social-Behavioral Sciences (SB), Natural Sciences (SQ / SG), General Studies Awareness Area: Cultural Diversity in the U.S. (C), Global Awareness (G),

I developed a learning module “Healthy habits for bees” for K-5 together with graduate student Amalie Strange. We piloted the module in 2nd and 3rd grade classrooms. The module is delivered by Zoom and includes a virtual bee hive tour live-streamed from the ASU Honey Bee Facility.
Does your unit consider this activity to be Research, Service or Teaching?: Service

Jan 2024 - Present Topic: Honors Projects for Animal Physiology, BIO 394, Course Section Number: 17189, ASU Unit: School of Life Sciences, Undergraduate or Graduate Level: Undergraduate , General Studies Core Area: Natural Sciences (SQ / SG),

I developed this course on short notice when the need for an honors course arose, i.e. BIO360 Animal Physiology (taught by other faculty) did not offer students an option of honors credit. I developed a reading group concept centered on discussion of the book “Zoobiquity: The Astonishing Connection Between Human and Animal Health” by Barbara Natterson-Horowitz, Kathryn Bowers. ISBN-13: 978-0307477439 ISBN-10: 0307477436. I structured weekly hand-in coursework and an end-of-year reflection assignment. This course design was modeled after an honors section that I co-taught before, and that was very well-received by students. It continues to draw strong enrollment including in 2025 and 2026 (Fall schedule).

Does this apply to course or degree development?: New Course, Course Delivery: On-ground, Special Topic Course: Yes, Team Taught: No, Does your unit consider this activity to be Research, Service or Teaching?: Teaching

Aug 2025 - Present CLAS AI academy project, Undergraduate or Graduate Level: Undergraduate , General Studies Core Area: Natural Sciences (SQ / SG),

As a member of the CLAS AI academy, I am expected to develop a project-based teaching curriculum. My project is an intuitive and scalable AI-enhanced approach to learning, understanding and interpreting data patterns (distributions, deviations, comparisons) that does not rely on traditional, rigid tools that force specific formatting and methodologies (e.g. Excel). This curriculum is tailored to the SOLS BIO181 and BIO182 courses.

Does this apply to course or degree development?: Revised Course, Course Delivery: On-ground and Online, Does your unit consider this activity to be Research, Service or Teaching?: Service

May 2024 - Present Animal Physiology, BIO360, Course Section Number: 40393 and 42609, General Studies Core Area: Natural Sciences (SQ / SG),

I revised this course including new course pages, new assignments, revised exams and course structures. I requested and received assistance from the SoLS Teaching and Learning Center to ensure that I implemented strong solutions and followed best practices. I also met with and involved a former TA in discussions and implementation of changes to do my best to keep the revision tuned to the needs of the course and the expectations of the students.

Does this apply to course or degree development?: Revised Course, Course Delivery: Online, Special Topic Course: No, Team Taught: No, Does your unit consider this activity to be Research, Service or Teaching?: Teaching

Sponsored Projects / Grants

Completed

Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee (Apis mellifera) health - ATF, Funded by The Norwegian University of Life Sciences July 1, 2025 - June 30, 2027 (**$12,832.00**), Completed, Aug 2025, PI Gro Amdam (100%) [Award or Proposal: Proposal] [Direct Costs Requested: 10265.00] [Indirect Costs Requested: 2567.00] [Investigator Recognition Amount: 12832.00] [Originating Sponsor: Research Council of Norway]

One protein stronger colonies: AI-enhanced marker-assisted selection of health-promoting protein variants, Funded by USDA: National Institute of Food and Agriculture (NIFA) May 1, 2026 - April 30, 2030 (**$750,000.00**), Completed, Aug 2025, PI Gro Amdam (50%) with CoInvestigator Timothy Linksvayer (50%) [Award or Proposal: Proposal] [Direct Costs Requested: 582550.00] [Indirect Costs Requested: 167450.00] [Investigator Recognition Amount: 375000.00] [Originating Sponsor: USDA: National Institute of Food and Agriculture (NIFA)]

All-in-1: Breeding healthier honeybees by targeting one multifunctional protein and its nutrient ligands for marker assisted selection, Funded by USDA: Agricultural Research Service (ARS) May 1, 2025 - April 30, 2029 (**$424,808.00**), Completed, Aug 2024, PI Gro Amdam (100%) [Award or Proposal: Proposal] [Direct Costs Requested: 300581.00] [Indirect Costs Requested: 124227.00] [Investigator Recognition Amount: 424808.00] [Originating Sponsor: USDA: National Institute of Food and Agriculture (NIFA)]

Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee (Apis mellifera) health - ATF, Funded by The Norwegian University of Life Sciences July 1, 2023 - June 30, 2025 (**$11,252.00**), Completed, Aug 2023, PI Gro Amdam (100%) [Award or Proposal: Proposal] [Direct Costs Requested: 9002.00] [Indirect Costs Requested: 2250.00] [Investigator Recognition Amount: 11252.00] [Originating Sponsor: Research Council of Norway]

Genetic Dissection of the Reproductive Ground-plan Hypothesis of Social Evolution, Funded by The Norwegian University of Life Sciences June 1, 2008 - September 30, 2022 (**$591,678.00**), Completed, Aug 2022, PI Gro Amdam (100%) [Award ID: AWD00020816] [Award or Proposal: Award] [Investigator Recognition Amount: 591678] [Originating Sponsor: The Norwegian University of Life Sciences]

Funded - In Progress

USDA Innovation Fund Project, topic: Allele-specific screening chip for honey bee vitellogenin, Funded by USDA ARS Innovation Fund Project March 3, 2025 - Ongoing (**$25,000.00**), Funded - In Progress, Jan 2025, CoPI Kate Ihle (60%) with CoPI Gro Amdam (40%) [Award or Proposal: Proposal] [Investigator Recognition Amount: 10000]

Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee (Apis mellifera) health - ATF, Funded by The Norwegian University of Life Sciences January 1, 2024 - Ongoing (**$11,252.00**), Funded - In Progress, Aug 2024, PI Gro Amdam [Award or Proposal: Award]
Second year distrubution from a 4 year award

Coordination and Support Activity – Researcher Mobility: Boosting the Bee, Funded by Research Council of Norway December 4, 2023 - December 3, 2024 (**$47,000.00**), Funded - In Progress, Aug 2023, PI Gro Amdam (100%) with Other Vilde Leipart

Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee Apis mellifera health, Funded by The Norwegian University of Life Sciences July 1, 2023 - June 30, 2027, awarded November 30, 2023 (**$24,083.00**), Funded - In Progress, May 2023, PI Gro Amdam (100%) [Award ID: AWD00039088] [Award or Proposal: Award] [Investigator Recognition Amount: 24083] [Originating Sponsor: The Norwegian University of Life Sciences]

Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee (Apis mellifera) health, Funded by Research Council of Norway July 1, 2023 - June 30, 2027 (**$960,000.00**), Funded - In Progress, Aug 2022, PI Gro Amdam

Submitted - Not Funded

Breeding more resilient bees through AI powered marker assisted selection., Funded by Project Apis m. September 1, 2025 - Ongoing (**$82,000.00**), Submitted - Not Funded, May 2025, CoPI KATE IHLE (50%) with CoPI Gro Amdam (50%) [Award or Proposal: Proposal] [Direct Costs Requested: 82000] [Investigator Recognition Amount: 41000]

Our proposal was submitted to the private sponsor Project Apis m. by my collaborator Dr. Kate Ihle at USDA-ARS, Baton Rouge, LA. I was Co-PI 50/50 split. The proposal was not funded, but we got strong and positive feedback and are revising for the 2026 submission deadline.

All-in-1: Breeding healthier honeybees by targeting one multifunctional protein and its nutrient ligands for marker assisted selection, Funded by USDA: Agricultural Research Service (ARS) May 1, 2024 - April 30, 2028 (**$306,187.00**), Submitted - Not Funded, Aug 2023, PI Gro Amdam (100%) [Award or Proposal: Proposal] [Direct Costs Requested: 214331.00] [Indirect Costs Requested: 91856.00] [Investigator Recognition Amount: 306187.00] [Originating Sponsor: USDA: National Institute of Food and Agriculture (NIFA)]

Submitted for Review

Implications of Honey Bee Genetic Variation For Vitellogenin Protein Structure And Function in Pathogen-Binding, Funded by National Institute of Food and Agriculture, Agriculture and Food Research Initiative (AFRI) August 13, 2020 - August 13, 2022 (**$500,000.00**), Submitted for Review, May 2022, PI Gro Amdam

In Preparation - Not Submitted

Selective breeding honey bees for beneficial Vitellogenin allelic variation, Funded by USDA January 1, 2024 - Ongoing (**$500,000.00**), In Preparation - Not Submitted, Aug 2022, CoPI Kate Ihle with CoPI Gro Amdam

Scholarship and Publications

Journal Article

Completed/Published

Leipart, V., Amdam, G. V., O'Brien, S., Pigott, E., Dodds, G., & Ihle, K. (2025). AI-enhanced marker-assisted selection concept for the multifunctional honey bee (Hymenoptera: Apidea) protein Vitellogenin (Vg). *Journal of Economic Entomology*, *118*, 2133–2144.
https://academic.oup.com/jee/article/118/5/2133/8239995

[Article Type: Original Research] [DOI: doi: 10.1093/jee/toaf187] [Peer review: Yes, peer reviewed]
Co-author: 6

Abstract
Managed honey bees (Hymenoptera: Apidae: Apis mellifera L.) have experienced unsustainably high rates of annual loss driven by several interacting factors, most notably pests, pathogens, pesticides, and poor nutrition. Breeding bee stocks that can cope with these challenges is a priority. Advanced molecular methods (marker-assisted selection [MAS]) have enhanced the breeding efficiency of domesticated animals in recent years, but have not contributed strongly to honey bee stock improvements. This is largely because desirable traits of bees usually emerge from collective phenotypes of workers (sterile females) instead of from the breeding individuals (queens and male drones). For collective phenotypes, single genes typically have small, additive effects, so identifying impactful MAS targets is challenging. Here, we provide proof of concept for a new approach to honey bee breeding through MAS using the multifunctional protein Vitellogenin (Vg), a protein known to interact with and mitigate the primary drivers of colony loss. Our pipeline leverages cutting-edge, artificial intelligence (AI)-driven protein structure modeling algorithms to predict the effects of genetic variants of Vg on relevant molecular functions including lipid, zinc, and DNA binding. Following the AI-powered Vg variant selection step, we use a combination of standard apicultural techniques and DNA sequencing validation to breed honey bee queens homozygous for the desirable Vg allele. Our protocol can kick-start a new area of modernized bee breeding: an AI-enhanced MAS system that allows cost-effective and nimble development of stocks to meet urgent and long-term needs of stakeholders.

Harwood, G., Leipart, V., Elsik, C., Ng, J., Drabløs, F., & Amdam, G. V. (2025). Evidence for vitellogenin DNA-binding in honey bees. *Protein Science*, *34*, 20 pages.
https://onlinelibrary.wiley.com/doi/10.1002/pro.70291

[DOI: 10.1002/pro.70291] [Peer review: Yes, peer reviewed]
Co-author: 6

Abstract

DNA-binding proteins play essential roles in DNA replication, DNA repair, DNA organization, and several aspects of gene regulation. Their well-studied structures and charge configurations aid in identifying similar functions in other proteins. Vitellogenin (Vg) is a highly conserved protein that is central to egg-yolk formation in most animal taxa. The protein is largely viewed as a transporter, but effects on immunity and behavior are documented. Experiments in honey bees (Apis mellifera) additionally suggest a role in gene regulation. The possibility of Vg-DNA binding has broad relevance due to Vg being phylogenetically widespread and having descendant proteins relevant to human cardiovascular health. Previously, we found that a Vg subunit can translocate to the honey bee nucleus and interact with DNA. Now, we provide a structural explanation for Vg's DNA-binding potential by identifying conserved DNA-binding amino acids in structural regions similar to established DNA-binding proteins. Next, we examined how Vg-DNA binding may elicit gene expression changes in honey bee workers, characterized by distinct changes in Vg levels over their lifetimes. Finally, we identify other nuclear proteins likely bound to the Vg-DNA complex in honey bees. Our data suggest that Vg-DNA binding is associated with expression changes in dozens of genes and that the Vg-DNA complex interacts with dozens more nuclear proteins. We propose that Vg-DNA binding can regulate several important processes in honey bee workers, including energy metabolism, behavior, and signaling. Due to the conserved nature of Vg and its descendant proteins, these functions may be present in various animals, including humans.

Montserrat-Canals, M., Schnelle, K., Leipart, V., Halskau, Ø., Amdam, G. V., Moeller, A., … Luecke, H. (2025). Cryo-EM structure of native honey bee vitellogenin. *Nature Communications*, *16*, 13 pages.
https://www.nature.com/articles/s41467-025-58575-y

[Article Type: Original Research] [DOI: 10.1038/s41467-025-58575-y] [Peer review: Yes, peer reviewed]
Co-author: 7

Abstract

Vitellogenin (Vg) is the main yolk precursor lipoprotein in almost all egg-laying animals. In addition, along its evolutionary history, Vg has developed a range of new functions in different taxa. In the honey bee, Vg has functions related to immunity, antioxidant protection, social behavior and longevity. However, the molecular mechanisms underlying Vg functionalities are still poorly understood. Here, we report the cryo-EM structure of full-length honey bee Vg, one-step purified directly from hemolymph. The structure provides structural insights into the overall domain architecture, including the lipid binding cavity and the previously uncharacterized von Willebrand factor type D domain. A domain of unknown function has been identified as a C-terminal cystine knot domain based on structural homology. Information about post-translational modifications, cleavage products, metal and lipid binding allow an improved understanding of the mechanisms underlying the range of Vg functionalities. The findings have numerous implications for the structure-function relationship of vitellogenins of other species as well as members of the same protein superfamily, which share the same structural elements.

Leipart, V., Carmona, O. G., Orengo, C., Fraternali, F., & Amdam, G. V. (2025). Assessing structure-function impacts on Vitellogenin by leveraging allelic variant found in honey bee subspecies Apis mellifera mellifera. *iScience*, *28*, 17 pages.
https://www.sciencedirect.com/science/article/pii/S2589004225015020

[Article Type: Original Research] [DOI: 10.1016/j.isci.2025.113241] [Peer review: Yes, peer reviewed]
Co-author: 5

Abstract

Advances involving artificial intelligence (AI) and experimental structure determination can provide detailed pictures of complex protein structures and their variations. Vitellogenin (Vg), derived from the honeybee (Apis mellifera), is an essential protein for reproduction in most egg-laying animals and can regulate behavior and provide immunological support in some species. Despite its importance, information on Vg's structure-function relationships is limited. Leveraging a unique dataset of 1,086 fully sequenced Vg alleles, we identify a population-specific 9-nucleotide deletion in a central Vg domain of the locally endangered A. m. mellifera subspecies. Due to the population's history of near extinction and human intervention, an assessment of this Vg variant is theoretically interesting and relevant for subspecies conservation efforts. Structural bioinformatics, molecular dynamics simulations, and a transformer-based indel predictor (IndeLLM) demonstrate that the deletion does not disrupt Vg's structure and stability. Generalizable results may extend to other egg-laying animals of ecological and economic importance.

Oreshkova, A., Scofield, S., & Amdam, G. V. (2024). The effects of queen mandibular pheromone on nurse-aged honey bee (*Apis mellifera*) hypopharyngeal gland size and lipid metabolism.. *PLoS One*, *19*, e0292500. [Article Type: Article] [DOI: doi: 10.1371/journal.pone.0292500] [Peer review: Yes, peer reviewed]
Co-author: 3

Scofield, S., & Amdam, G. V. (2024). Fat body lipogenic capacity in honey bee workers is affected by age, social role and dietary protein. *Journal of Experimental Biology*, *277*, jeb247777. [Article Type: Article] [DOI: doi: 10.1242/jeb.247777] [Peer review: Yes, peer reviewed]
Co-author: 2

Strange, A., & Amdam, G. V. (2024). Solitary but not alone: materializing boundaries at a distance with a leafcutter bee's nest. *Australian Journal of Environmental Education*, *40*, pp. 231 – 242. [Article Type: Article] [DOI: https://doi.org/10.1017/aee.2024.14] [Peer review: Yes, peer reviewed]
Graduate Student Researcher: 1, Other: 1

Daniels, B. C., Wang, Y., Page, R. E., & Amdam, G. V. (2023). Identifying a developmental transition in honey bees using gene expression data . *Plos Computational Biology*, *19*, e1010704.

Leipart, V., Enger, Turcu, D. C., Dobrovolska, O., Drabløs, F., Halskau, & Amdam, G. V. (2022). Resolving the zinc binding capacity of honey bee vitellogenin and locating its putative binding sites. *Insect Molecular Biology*, *31*, 810–820.

Leipart, V., Ludvigsen, J., Kent, M., Sandve, S., To, T. H., Árnyasi, M., … Amdam, G. V. (2022). Identification of 121 variants of honey bee Vitellogenin protein sequences with structural differences at functional sites. *Protein Science : A Publication of the Protein Society*, *31*, e4369.

Salmela, H., Harwood, G. P., Münch, D., Elsik, C. G., Herrero-Galán, E., Vartiainen, M. K., & Amdam, G. V. (2022). Nuclear translocation of vitellogenin in the honey bee (*Apis mellifera*). *Apidologie*, *53*, 13.

Leipart, V., Halskau, & Amdam, G. V. (2022). How Honey Bee Vitellogenin Holds Lipid Cargo: A Role for the C-Terminal. *Frontiers in Molecular Biosciences*, *9*, 865194.

Leipart, V., Montserrat-Canals, M., Cunha, E. S., Luecke, H., Herrero-Galán, E., Halskau, & Amdam, G. V. (2022). Structure prediction of honey bee vitellogenin: a multi-domain protein important for insect immunity. *FEBS Open Bio*, *12*, 51–70.

In Press

Carmona, O. G., Leipart, V., Amdam, G. V., Orengo, C., & Fraternali, F. (2025). Leveraging protein language models and a scoring function for indel characterization and transfer learning. *Patterns*, *7, 101425*.
https://www.cell.com/patterns/fulltext/S2666-3899(25)00273-9

[Article Type: Original Research] [DOI: 10.1016/j.patter.2025.101425] [Peer review: Yes, peer reviewed]
Co-author: 5

Summary

Protein language models (PLMs) are increasingly used to assess the impact of genetic variants, achieving high accuracy and often outperforming traditional pathogenicity predictors. They enable zero-shot inference, making predictions without task-specific fine-tuning, though studying in-frame insertions and deletions (indels) remains challenging due to altered protein lengths and limited annotated datasets. Here, we present IndeLLM, a scoring approach for indel pathogenicity that accounts for sequence length differences. Our zero-shot method relies solely on sequence information, requires minimal computing resources, and achieves performance comparable to existing predictors. Building on this, we developed a Siamese network via transfer learning that outperformed all tested indel predictors (Matthews correlation coefficient = 0.77). To enhance accessibility, we provide a plug-and-play Google Colab notebook for using IndeLLM and visualizing the impact of indels on protein sequence and structure. The tool is freely available on GitHub and Google Colab.

Accepted

Quigley, T., & Amdam, G. V. (2026). Effect of aging and Varroa parasitism on the paracellular and transcellular permeability of the honeybee blood-brain barrier. *PLoS One*. [Article Type: Article] [Peer review: Yes, peer reviewed]
Co-author: 2

Revise & Resubmit

Burden-Page, C., Smith, B., & Amdam, G. V. (2025). DNA methyltransferase inhibitor treatment effects on two honey bee behaviors suggests complex DNA methylation - behavior relationships. *Journal of Experimental Biology*. [Article Type: Article] [Peer review: Yes, peer reviewed]
Co-author: 3

Orlova, M., Harwood, G., Freitak, D., & Amdam, G. V. (2025). Immune challenge reduces the production of queen-specific compounds and fertility signals in honey bee queens. *Apidologie*. [Peer review: Yes, peer reviewed]
Co-author: 4

Burden-Page, C., Amdam, G. V., & Smith, B. (2025). Chronic Selenium Exposure Is Lethal and Results in Bioaccumulation but has Minimal Impacts on Behavior and Colony Function in the Honey Bee (Apis mellifera) . *Frontiers in Bee Science*. [Article Type: Article]
Co-author: 3

Quigley, T., & Amdam, G. V. (2025). Ultrastructural Organization of the Honeybee Blood-Brain Barrier and Comparison with Age. *Journal of Comparative Neurology*. [Article Type: Article] [Peer review: Yes, peer reviewed]
Co-author: 2

Submitted

Quigley, T., & Amdam, G. V. (2026). Tracking isotopically labeled biomolecule transport across the honeybee blood-brain barrier with NanoSIMS. *Scientific Reports*. [Article Type: Article] [Peer review: Yes, peer reviewed]
Co-author: 2

Leipart, V., Cartwright, R. A., Eyre-Walker, A., Sandve, S., & Amdam, G. V. (2025). Population genetic study of vitellogenin identifies two common gene variants, revealing selective constraints in honey bees. *Genome Biology and Evolution*. [Article Type: Original Research]
Co-author: 5

In Progress

Scofield, S., & Amdam, G. V. (2025). Unpaired-like signaling may shape honey bee (Apis mellifera) worker metabolic plasticity. [Article Type: Original Research]
Author: 1, Co-author: 1

Scofield, S., & Amdam, G. V. (2025). Is the neuropeptide corazonin involved in regulating honey bee worker division of labor as a signal of energetic stress? [Article Type: Original Research]
Author: 1, Co-author: 1

Strange, A., Koro, M., & Amdam, G. V. (2025). Speculating Relations with Honeybees: A Posthuman Inquiry in Environmental Arts Education. [Article Type: Original Research]
Co-author: 2, Author: 1

Conference Proceedings

Completed/Published

Strange, A., & Amdam, G. V. (2023). Ethics of Closeness: Boundary Formation with a Leafcutter Bee's Nest. In *American Educational Research Association*.
Author: 1, Contributor: 1

Strange, A., & Amdam, G. V. (2023). Posthumanism and human insect interactions. In *International Congress of Qualitative Inquiry 2023*.
Author: 1, Contributor: 1

Presentation

Completed/Published

Amdam, G. V. (2025). *Overcoming the Step 1 hurdle of the SFF review. . Strategies for winning an SFF award.* Aas, Norway: Norwegian University of Life Sciences (NULS).

I was asked by NULS leadership whether I could provide a review and workshop opportunity for faculty who planned to apply for the Center of Excellence Award (SFF) from the Research Council of Norway. This involved presenting best strategies and providing feedback on proposal ideas and presentations.

Leipart, V., & Amdam, G. V. (2025). *AI-enhanced marker-assisted selection concept for the multifunctional honey bee protein vitellogenin (Vg). Entomological Society of America (ESA), Portland, Oregon, USA*. Portland, Oregon, USA.
Presenter: 1, Co-author: 1

Leipart, V., & Amdam, G. V. (2025). *Structure-function relationship of Honey bee Vitellogenin (Vg)*. *Honig Lab, invited session. October 2025, Columbia University, New York, USA.* Columbia University, New York, USA.
Presenter: 1, Contributor: 1

Leipart, V., & Amdam, G. V. (2025). *Zinc-binding capacity of honey bee Vitellogenin (Vg)*. *Royal Entomology Society ENTO25, Glasgow, Scotland.* Glasgow, Scotland.
Presenter: 1, Co-author: 1

Amdam, G. V. (2025). *Planning the next phase of bee health research while coordinating science, stakeholders and strategy.*. *Boosting the Bee Project Workshop, Molde, Norway.* Molde, Norway.
Workshop leader: 1

Leipart, V., & Amdam, G. V. (2025). *From structure to function: Vitellogenin through AI, bioinformatics, and computational insights across work packages. Boosting the Bee Project Workshop, Molde, Norway.* Molde, Norway.
Presenter: 1, Organizer: 1

Willis, J., Amdam, G. V., & Holecheck, S. (2025). *Using a Genetic Approach to Identify Africanized Honey Bees, Develop a Community Outreach Program, and Expand Undergraduate Research Opportunities*. *Thesis Defense Presentation by Jessica Willis (MS), ASU*. Tempe, USA.
https://keep.lib.asu.edu/items/202942

Committee chair: 2, Graduate Student Researcher: 1

Strange, A., Koro, M., & Amdam, G. V. (2025). *Honeybee Non/violence: Making Kin in Environmental Education. American Educational Research Association. Denver, Colorado.* Denver, Colorado.
Co-author: 2, Graduate Student Researcher: 1

Halskau, Ø., & Amdam, G. V. (2025). *Hands-on with Vitellogenin: Experimental work on honey bee nutrition and behavior. Boosting the Bee Project Workshop, Molde Norway.* Molde, Norway.
Invited Speaker: 1, Organizer: 1

Halskau, Ø., Leipart, V., & Amdam, G. V. (2025). *Exploring the dynamics and structural context of the von Willebrand Factor, a domain of honey bee Vitellogenin. MR 2025 — the 18th biennial conference of the Norwegian Society for Magnetic Resonance. Bergen, Norway.* Bergen, Norway.
Co-author: 2, Presenter: 1

Leipart, V., & Amdam, G. V. (2025). *Honey bee Vitellogenin in a locally endangered honey bee taxa. International Conference on the Conservation of Endemic Honey Bee Subspecies. Stavanger, Norway.* Stavanger, Norway.
Presenter: 1, Co-author: 1

Carmona, O. G., Leipart, V., & Amdam, G. V. (2025). *Leveraging protein language models and scoring functions for Indel characterization and transfer learning. 3D-BioInfo Annual Meeting. Barcelona, Spain.* Barcelona, Spain.
Presenter: 1, Co-author: 1, Contributor: 1

Leipart, V., & Amdam, G. V. (2025). *Resolving honey bee protein structure using AI and advanced imaging. Master class - University of Bergen, Norway.* Bergen, Norway.
Presenter: 1, Co-author: 1

Willis, J., Amdam, G. V., & Holecheck, S. (2025). *Using a Genetic Approach to Identify Africanized Honey Bees, Develop a Community Outreach Program, and Expand Undergraduate Research Opportunities. ASBMB Annual meeting 2025. Chicago, Illinois, USA.* Chicago, IL, USA.: American Society for Biochemistry and Molecular Biology.
Co-author: 2, Graduate Student Researcher: 1

Leipart, V., & Amdam, G. V. (2024). *Identification of a genetic signature in an endangered honey bee subspecies*. *4th Disva-MaSBiC Symposium Advances in Biomolecular Science: Perspectives on Structure, Function and Complexity*. Ancona, Italy.
Presenter: 1, Co-author: 1

Willis, J., Amdam, G. V., & Holecheck, S. (2024). *Developing a Community Outreach Program to Expand Research Opportunities for Undergraduate Students by Using a Molecular Biology Approach to Identify Africanize Honey Bees*. *Entomological Society's symposium/Entomology 2024*. Phoenix, Arizona, USA.
Co-author: 2, Presenter: 1

Willis, J., Amdam, G. V., & Holecheck, S. (2024). *Using a Genetic Approach to Identify Africanized Honey Bees, Develop a CommunityOutreach Program, and Expand Undergraduate Research Opportunities*. *SACNAS: 2024 NDiSTEM Conference*. Phoenix, Arizona.
Co-author: 2, Presenter: 1

Willis, J., Amdam, G. V., & Holecheck, S. (2024). *Using a Genetic Approach to Identify Africanized Honey Bees, Develop a CommunityOutreach Program, and Expand Undergraduate Research Opportunities*. *BioSci Southwest Symposium*. Tempe, Arizona, USA.
Co-author: 2, Presenter: 1

Noback, K., Strange, A., & Amdam, G. V. (2024). *Data refusals, responses, and re-orientations*. *ASU STEM Inclusion Summit*. Tempe, Arizona, USA.
Presenter: 1, Co-author: 1, Committee chair: 1

Amdam, G. V. (2024). *Vitellogenin - The Swiss knife of honey bees*. *Boston Area Beekeepers Association (BABA), monthly meeting*. Boston, Massachusetts, USA: Boston Area Beekeepers Association (BABA).
Presenter: 1

Ihle, K., & Amdam, G. V. (2024). *Breeding Better Bees*. *Northwestern Minnesota Beekeepers Association, monthly meeting*. Minneapolis, Minnesota, USA.
Presenter: 1, Co-author: 1

Leipart, V., & Amdam, G. V. (2024). *Understanding the structure-function relationship of honey bee Vitellogenin*. *BioExcel Summer School on Biomolecular Simulations*. Sardinia, Italy.
Presenter: 1, Co-author: 1

Leipart, V., & Amdam, G. V. (2024). *New insight into honey bee plasticity by identifying genetic protein-coding variants in Vg*. *Royal Society meeting: Locust and bee plasticity in a changing world*. Cambridge, United Kingdom.
Presenter: 1, Co-author: 1

Leipart, V., & Amdam, G. V. (2024). *Ancient deletion in honey bee (Apis mellifera) Vitellogenin (Vg) and Functional sites in the highly conserved Vg β-barrel"*. *University College of London Seminars*. London, United Kingdom.
Presenter: 1, Co-author: 1

Leipart, Vi., & Amdam, G. V. (2024). *Resolving honey bee protein structure using AI and advanced imaging*. *University of Bergen, Master students seminar series*. Bergen, Norwasy.
Presenter: 1, Co-author: 1

Strange, A., & Amdam, G. V. (2024). *Ethics of closeness: Boundary formation with a leafcutter bee's nest*. *American Educational Research Association, annual meeting*. Philadelphia, Pennsylvania, USA.
Presenter: 1, Committee chair: 1

Strange, A., Koro, M., & Amdam, G. V. (2024). *Non/violent Honeybee Becomings*. *International Congress of Qualitative Inquiry.* Urbana-Champaign, Illinois, USA.
Co-author: 2, Presenter: 1

Leipart, V., & Amdam, G. V. (2023). *Institute Seminar, University College of London UK. October 2023. Structure-function relationship of honey bee Vitellogenin, with NMBU postdoc Vilde Leipart . Departmental Seminar, University College of London*. London, UK.
Author: 1

Strange, A., & Amdam, G. V. (2023). *Posthumanism and human insect interactions . Social Insect Research Group, Seminar*. ASU.
Author: 1

Amdam, G. V. (2023). *Sociality and Aging*. *International Conference, Animal Behavior Society*. Portland, Oregon, USA: Animal Behavior Society.
Invited Speaker: 1

Amdam, G. V. (2023). *Developing successful grant applications for the RCN FRIPRO Frontiers Program.. NMBU Faculty Workshop*. Aas, Norway: Norwegian University of Life Sciences (NMBU).
Invited Speaker: 1

Leipart, V., & Amdam, G. V. (2023). *Vitellogenin Lipid Cargo*. *Invited seminar at KEW Royal Botanical Garden and the University of Oxford*. London, UK.
Invited Speaker: 1

Strange, A., & Amdam, G. V. (2023). *Mapping Materiality: Body Mapping as Research Activity and Pedagogical Activation. Symposium session on Embodied Methodologies and Analyses*. *International Congress of Qualitative Inquiry*. Urbana-Champaign, Illinois, USA.
Author: 1

Strange, A., Ghosh, P., & Amdam, G. V. (2023). *A mixed-methods study paradigm shifts in animal behavior research*. *Social Insect Research Group (SIRG) Seminar*. ASU.
Co-author: 2

Oreshkova, A., Scofield, S., & Amdam, G. V. (2023). *Queen mandibular pheromone: Effects on nurse-aged honey bee (Apis mellifera) hypopharyngeal gland size and lipid metabolism*. *Honors Student Research Symposium*. ASU.
Author: 1, Co-author: 1

Amdam, G. V. (2021). *Constructing strong RCN applications*. *University-wide Faculty meeting, Norwegian University of Life Sciences*. Aas, Norway.

Amdam, G. V. (2022). *Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee Health*. *Workshop presentation, University College of London*. London UK (virtual).

Leipart, V., & Amdam, G. V. (2021). *Honey bees importance for the UN Sustainable development Goal 15 – Life on land . UN Sustainable development Goal-week, Bjørnsletta Middle School*. Oslo, Norway.
Presenter: 1

Leipart, V., & Amdam, G. V. (2021). *Understanding the structure-function relationship of honey bee Vitellogenin*. *Seminar series, Faculty of Environmental Sciences and Natural Resource Management, Norwegian University of Life Sciences*. Aas, Norway.
Presenter: 1

Leipart, V., & Amdam, G. V. (2022). *Vitellogenin (Vg) Structure*. *ELIXIR 3D-BioInfo Community in Structural Bioinformatics, EMBL-EBI Campus*. Hinxton, UK.
Presenter: 1

Amdam, G. V., & Strange, A. (2022). *Bringing Students Into the Hive: Designing and Assessing Outreach Programs*. *Animal Behavior Live*. YouTube Live event.
Presenter: 1

Strange, A., & Amdam, G. V. (2022). *Can seeing inspire action? An interactive digital beehive tour for equitable access to nature . RISE Center Natural Sciences Inclusion Summit*. ASU, Tempe.
Presenter: 1

Scofield, S., & Amdam, G. V. (2022). *Social Regulation of Lipid Metabolism in Honey Bee Workers*. *2022 Arizona Physiological Society Annual Meeting, Graduate Student Featured Symposium*. Scottsdale, AZ.
Presenter: 1

Strange, A., & Amdam, G. V. (2022). *Can seeing inspire action? An interactive digital beehive tour for equitable access to nature*. *International Union for the Study of Social Insects*. San Diego, CA.
Poster: 1

Leipart, V., & Amdam, G. V. (2021). *Researching a honey bee protein*. *Open door symposium, Norwegian University of Life Sciences*. Aas, Norway.
Presenter: 1

Research Data

Completed/Published

Carmona, O. G., Amdam, G. V., Leipart, V., Orengo, C., & Fraternali, F. (2025). Inframe indels IndeLLM, Hugging Face, 2025. Curated dataset of 7,500 genetic indels.
https://huggingface.co/datasets/fraternalilab/Inframe_indels_IndeLLM/commit/5876652c41c217a469f1852433cc16952b2ac299

Contributor: 3, Principal investigator: 1, Author: 1

Carmona, O. G., Leipart, V., Amdam, G. V., Orengo, C., & Fraternali, F. (2025). IndeLLM, GitHub repository of IndeLLM (a pathogenicity predictor for genetic insertions and deletions using protein language models and machine learning), 2025.
https://github.com/OriolGraCar/IndeLLM

Contributor: 3, Author: 1, Principal investigator: 1

Leipart, V., Halskau, O., & Amdam, G. V. (2022). Launching the first vaccination programs for a beneficial, pollinating insect.

Technology

Completed/Published

Carmona, O. G., Leipart, V., Amdam, G. V., Orengo, C., & Fraternali, F. (2025). IndeLLM, Google Colab for running IndeLLM, 2025. .
Https://colab.research.google.com, *IndeLLM*.
https://colab.research.google.com/github/OriolGraCar/IndeLLM/blob/main/IndeLLM.ipynb

Contributor: 3, Designer: 2

News Article

Completed/Published

Leipart, V., & Amdam, G. V. (2025). Breeding healthier and stronger honeybees.
https://deepmind.google/blog/breeding-healthier-and-stronger-honeybees/

Interviewee: 1, Other: 1

Libell, H., Nordal, A. G., & Amdam, G. V. (2025). Fra pacemakeren til bienes mysterium. (From the pacemaker to the mysteries of bees).
https://www.tekna.no/magasinet/Fra-pacemakeren-til-bienes-historie/

Author: 1, Co-author: 1, Interviewee: 1

"Two hundred years ago, the first Norwegians emigrated to America. In the second part of our anniversary articles, you'll meet Nobel Prize winners, innovators, and researchers who have left a lasting mark."

Finnerty, M., Neely, M., & Amdam, G. V. (2025). The mighty impact of insects.
https://news.asu.edu/20250424-environment-and-sustainability-mighty-impact-insects

Author: 1, Interviewee: 1

Arizona State University has a lot of insects — and for good reason. A colony of researchers is studying how social insects can be used as tools to answer fundamental questions.

Schnebly, R. A., Amdam, G. V., Oreshkova, A., & Scofield, S. (2024). Barrett alum's publication of undergraduate research as first author a rare feat.
Interviewee: 3, Author: 1

Hansen, S. B., & Amdam, G. V. (2024). Hvorfor er det saa vanskelig a vaere bie? [Language of First Publication: Norwegian]
Author: 1, Interviewee: 1

Tomma, G., & Amdam, G. V. (2024). Honeybees Wing-Slap Ants That Try to Invade Their Hive.
Author: 1, Interviewee: 1

Strange, A., & Amdam, G. V. (2023). ASU's Bee Lab Annex is one of the largest bee research centers in the U.S. KJZZ Featuring graduate student Amalie Strange.
Interviewee: 1, Other: 1

Amdam, G. V. (2023). First approved honey bee vaccine.
Other: 1

Ruiz-Tejada, A., & Amdam, G. V. (2022). $1.1M in funding to unlock power of critical protein in honeybees.
Author: 1, Interviewee: 1

Tropiano, D., Strange, A., & Amdam, G. V. (2022). ASU summit addresses diversity, inclusion in STEM.
Author: 1, Graduate Student Researcher: 1, Other: 1

Leipart, V., & Amdam, G. V. (2022). It took me two days to do something that could have taken me years.
Interviewee: 1, Other: 1

Other Scholarly Work

Completed/Published

Amdam, G. V. (2025). Professional consultation.
I provided a two-hour professional consultation with a faculty member in Physical Medicine and Rehabilitation at the University of Michigan regarding the conceptual development of a research project on choice-making in individuals with severe speech and motor impairments. The consultation focused on translating methods and conceptual frameworks from animal preference and decision-making research to a challenging human clinical research context. I offered external perspective on study framing, terminology, and how decision-making constructs may be communicated clearly to interdisciplinary collaborators and funding bodies. The discussion emphasized conceptual clarity, feasibility, and the articulation of choice behavior in populations with profound communication limitations.

Scofield, S., & Amdam, G. V. (2024). Journal Cover: Honey bee. Image by graduate student Sebastian Scofield. *Journal of Experimental Biology. 2024 Sep 15;227(18)*.
Illustrator: 1, Other: 1

Leipart, V., Bang, C., & Amdam, G. V. (2022). Journal Cover, FEBS OpenBio. *FEBS OpenBio*.

Bang Jr., C., Amdam, G. V., & Leipart, V. (2022). Cover image. *FEBS Open Bio*, *12*.
https://febs.onlinelibrary.wiley.com/doi/epdf/10.1002/2211-5463.13360

Accepted

Leipart, V., Bang, C., & Amdam, G. V. (2026). Journal cover, featuring honey bee. *Insect Molecular Biology*.
https://www.royensoc.co.uk/news/new-year-new-journal-covers-2026/

Contributor: 2, Illustrator: 1

Leipart, V., Scofield, S., & Amdam, G. V. (2026). Journal cover, featuring honey bees on comb. *Journal of Economic Entomology*.
Contributor: 2, Illustrator: 1

We developed this cover illustration in 2025, and was notified by JEE that they will use it during their 2026 cover image rotation. The image is by my PhD student Sebastian Scofield, and the cover mockup illustration and the communications with the JEE editorial team was conducted by my postdoc Vilde Leipart.

Research: Scholar Metrics

Aug 2025	Citation Source: Google Scholar, Metric Date: 2026-01-22, h-index: 68, Google Scholar i10-index: 141, Number of Publications: 168, Total Citations: 18763
Aug 2024	Citation Source: Google Scholar, Metric Date: 2024-12-31, h-index: 66, Google Scholar i10-index: 137, Number of Publications: 164, Total Citations: 17598
Aug 2023	Scholar Profile ID: Gro V Amdam, Citation Source: Google Scholar, Metric Date: 2024-01-16, h-index: 65, Google Scholar i10-index: 132, Number of Publications: 161, Total Citations: 16187
Aug 2022	Scholar Profile ID: https://orcid.org/0000-0001-7797-6464, Citation Source: Google Scholar, Metric Date: 2023-01-05, h-index: 62, Google Scholar i10-index: 125, Number of Publications: 158, Total Citations: 14848

Mentorship and Student Success

Jan 2026 - Present	Myers, Henry, Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Is the mentorship associated with a Barrett, the Honors College contract?: Yes, Describe any achievements or positions the student has attained: Henry is enrolled in my new pre-med internship group that develop skills in microsurgery and pharmacology using honey bees as research model. Hubbard , Zion , Student's College or School: SOLS, Student Product: Master's Thesis, Completion Status: In Progress, Student Level: Master's, Mentoring Role: Committee Co-Chair, Additional Faculty Involved: Dr. Susan Holecheck Sirigineedi, Niyathi, Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Is the mentorship associated with a Barrett, the Honors College contract?: Yes, Describe any achievements or positions the student has attained: Niyathi is enrolled in my new pre-med internship group that develop skills in microsurgery and pharmacology using honey bees as research model.
Aug 2025 - Present	Christian, Emily , Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Dissertation / Thesis / Applied Project Title: Genetic Makeover: An Ethical Exploration of Cosmetic Gene Therapies, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Emily came to me from HON394 Honor Thesis Pathway Class on technology ethics., Is the mentorship associated with a Barrett, the Honors College contract?: Yes Castillo, Marissa , Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Is the mentorship associated with a Barrett, the Honors College contract?: Yes, Describe any achievements or positions the student has attained: Marissa is enrolled in my new pre-med internship group that develops skills in microsurgery and pharmacology using honey bees as research model. Faraz, Dua, Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Is the mentorship associated with a Barrett, the Honors College contract?: Yes, Describe any achievements or positions the student has attained: Dua is enrolled in my new pre-med internship group that develops skills in microsurgery and pharmacology using honey bees as research model. Strong, Kenny, Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Is the mentorship associated with a Barrett, the Honors College contract?: Yes,

Describe any achievements or positions the student has attained:

Kenny is enrolled in my new pre-med internship group that develops skills in microsurgery and pharmacology using honey bees as research model.

Christian, Ryn, Student's College or School: SOLS, Student Product: Undergraduate Honors Thesis, Dissertation / Thesis / Applied Project Title: Genetic Makeover: An Ethical Exploration of Cosmetic Gene Therapies, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate, Ryn came to me from HON394 Honor Thesis Pathway Class on technology ethics., Is the mentorship associated with a Barrett, the Honors College contract?: Yes

Aug 2024 - Present Suresh, Sachin , Student's College or School: School of Life Sciences, Student Product: Doctoral Dissertation, Completion Status: In Progress, Student Level: Doctoral, Mentoring Role: Committee Member, Additional Faculty Involved: Chair: Tim Linksvayer

Jan 2024 - May 2024 di Marco, Steven, Year Graduated: 2024, Degree Program: BIO, Student's College or School: School of Life Sciences, Student Product: Master's Capstone Project, Dissertation / Thesis / Applied Project Title: Creativity in Music from a Genetics Perspective , Completion Status: Completed, Student Level: Master's, Mentoring Role: Committee Chair - Master's

Aug 2023 - Dec 2025 Willis, Jessica, Month / Season Graduated: October, Year Graduated: 2025, Degree Program: BIO, Student's College or School: School of Life Sciences, Student Product: Master's Thesis, Dissertation / Thesis / Applied Project Title: Using a Genetic Approach to Identify Africanized Honey Bees, Develop a Community Outreach Program, and Expand Undergraduate Research Opportunities, Completion Status: Completed, Student Level: Master's, Mentoring Role: Committee Co-Chair, Additional Faculty Involved: Dr. Susan Holechek,
Describe any achievements or positions the student has attained:

2025: Jessica successfully defended her thesis: https://keep.lib.asu.edu/items/202942

2024: Submitted her proposal to the NSF Graduate Research Fellowship Program (GRFP) https://new.nsf.gov/funding/opportunities/grfp-nsf-graduate-research-fellowship-program
2024: Presented her work at 3 meetings/conferences (talks, posters)
2024: Applied for graduate school (PhD programs) including the SoLS MCB program

Aug 2023 - May 2025 Noback, Kieran , Year Graduated: 2025, Student's College or School: School of Life Sciences, Student Product: Research Project, Dissertation / Thesis / Applied Project Title: Data refusals, responses, and re-orientations, Completion Status: In Progress, Student Level: Undergraduate, Mentoring Role: Research Director,
Describe any achievements or positions the student has attained:

2024: Presented his research "Data refusals, responses, and re-orientations" at the ASU STEM Inclusion Summit (November).

Jan 2023 - May 2023 Sims , Sydney , Year Graduated: 2023, Student's College or School: School of Life Sciences, Student Product: Master's Capstone Project, Completion Status: Completed, Student Level: Master's, Mentoring Role: Provisional Advisor

Jan 2023 - May 2025 Niles, Garrett , Year Graduated: 2025, Student's College or School: School of Life Sciences, Student Product: Master's Capstone Project, Dissertation / Thesis / Applied Project Title: A meta study focusing on cell differentiation, Completion Status: Completed, Student Level: Master's, Mentoring Role: Committee Chair - Master's,
Describe any achievements or positions the student has attained:

Garrett is now working as a representative for Leica Microsystems.

Jan 2023 - May 2024 Sladkova, Sara, Year Graduated: 2024, Student Product: Undergraduate Honors Thesis, Dissertation / Thesis / Applied Project Title: Do corticosterone and estrogen influence social and anxiety behaviors differently in middle-aged female and male rats?, Completion Status: Completed, Student Level: Undergraduate, Mentoring Role: Reader - First, Additional Faculty Involved: Dr. Cheryl Conrad, Is the mentorship associated with a Barrett, the Honors College contract?: Yes

Olenick, Joshua , Year Graduated: 2024, Student's College or School: School of Life Sciences, Student Product: Research Project, Completion Status: Completed, Student Level: Undergraduate, Mentoring Role: Research Director

Aug 2022 - May 2023 Retting, Leia , Year Graduated: 2023, Student's College or School: SOLS, ASU, Student Product: Undergraduate Honors Thesis, Dissertation / Thesis / Applied Project Title: A meta study of women's health focusing on maternal morbidity and mortality in the USA, Completion Status: Completed, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate

Aug 2022 - May 2024 Dobson, Jenna , Year Graduated: 2024, Student's College or School: School of Life Sciences, Student Product: Research Project, Dissertation / Thesis / Applied Project Title: Peptide signaling in honey bee metabolic biology, Completion Status: Completed, Student Level: Undergraduate, Mentoring Role: Research Director

Aug 2022 - Dec 2023 Holder, Marina, Year Graduated: 2023, Student's College or School: SOLS, ASU, Student Product: Undergraduate Honors Thesis, Dissertation / Thesis / Applied Project Title: Honey bee vs Snake venom in cancer research, a meta study , Completion Status: Completed, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate

Jan 2022 - Aug 2024 Oreshkova, Angela , Year Graduated: 2023, Student's College or School: School of Life Sciences, Student Product: Undergraduate Honors Thesis, Dissertation / Thesis / Applied Project Title: Honey bee metabolic biology and the brain, Completion Status: Completed, Student Level: Undergraduate, Mentoring Role: Committee Chair - Undergraduate,
Describe any achievements or positions the student has attained:

2024: Publised her 1st author article with my team, in PLoS One: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0292500
2024: Successfully enrolled in The Arizona College of Osteopathic Medicine at Midwestern University.

2023: Barrett The Honors College student research support ($1,317).
2022: Barrett The Honors College (sponsor), student thesis research support, $1,300.

Jan 2022 - Present Ghosh , Purbayan, Degree Program: ANB, Student's College or School: SOLS, ASU, Student Product: Doctoral Dissertation, Completion Status: In Progress, Student Level: Doctoral, Mentoring Role: Committee Member, Additional Faculty Involved: Chair: Stephen Pratt

Aug 2021 - Present Tahir , Syeda Mehreen , Student's College or School: Environmental Life Sciences, Student Product: Doctoral Dissertation, Completion Status: In Progress, Student Level: Doctoral, Mentoring Role: Committee Member, Additional Faculty Involved: Chair: Adrianne Cease

Aug 2020 - Present Strange, Amalie, Degree Program: ANB, Student's College or School: SOLS ASU, Dissertation / Thesis / Applied Project Title: Virtual mattering of the more-than-human: A beehive digital interactive tour for low-SES children, Completion Status: In Progress, Student Level: Doctoral, Mentoring Role: Committee Chair - Doctoral,
Describe any achievements or positions the student has attained:

2025: Won the Distinguished Graduate Student Award, ASU Faculty Women's Association.

2025: Won the Goodman Award, Sponsor: Royal Entomological Society. Total funding amount: $1,121.81
2025: Won the Focus on Finishing Your Degree Fellowship. Sponsor: ASU Graduate College and School of Life Sciences. Total funding amount: $16,000

2025: Completed data collection for her PhD thesis.

2025: Submitted 2 first-author manuscripts

2025: Received multiple travel/conference awards

2024: SOLS E-Board President
2024: Published 1 single author peer review article
2024: Received multiple travel/conference awards
2024: Nominated as a student leader within The College of Liberal Arts and Sciences

2023-24: SOLS E-Board Communications Director and Facilities Representative

2023: SOLS Innovative Graduate Teaching Assistant Award
2023: Graduate College University Grant (GCUG, $5,000)

2022: Passed her comprehensive exam. Received ASU IRB approval for her human subject study STUDY00016805 entitled "Paradigm Shift use in animal behavior reseach". Co-investigators GV Amdam and P Ghosh.

2021: Submitted NSF Graduate Research Fellowship "Developing nature education programs for low-SES children using the charismatic honeybee (Apis mellifera)". Total request: $138,000.00.

Aug 2019 - Dec 2023 Jackson, Daniel, Year Graduated: 2023, Degree Program: ANB, Student's College or School: SOLS, ASU, Student Product: Doctoral Dissertation, Completion Status: Completed, Student Level: Doctoral, Mentoring Role: Committee Member, Additional Faculty Involved: Chair: Kevin McGraw

Aug 2018 - May 2022 Ostwald , Madeleine, Year Graduated: 2022, Degree Program: ANB, Student's College or School: SOLS, ASU, Student Product: Doctoral Dissertation, Dissertation / Thesis / Applied Project Title: Ecological drivers of group living in a facultatively social carpenter bee, Completion Status: Completed, Student Level: Doctoral, Mentoring Role: Committee Member, Additional Faculty Involved: Chair: Jennifer Fewell

May 2018 - May 2022 Leipart, Vilde, Year Graduated: 2022, Student's College or School: Norwegian University of Life Sciences, Student Product: Doctoral Dissertation, Dissertation / Thesis / Applied Project Title: Topic: Vitellogenin structure-function, Completion Status: Completed, Student Level: Doctoral, Mentoring Role: Committee Chair - Doctoral,
Describe any achievements or positions the student has attained:

2024: Royal Entomological Society Best Early Career Entomologist prize for Vol 31/2022 by Insect Molecular Biology, $200, for the article "Resolving the zinc-binding capacity of honey bee vitellogenin and locating its putative binding sites".

2024: Spearheaded a patent application (Invention Disclosure) for my team, submitted October-December 2024. This is now in review with Vestlandets Innovasjonsselskap AS (VIS) Norway.

2023: Norwegian University of Life Sciences, Alf Bjørseths Inspirational Award for the Best PhD Thesis 2023: To graduate student (now postdoc) Vilde Leipart. $10,000.00 (100,000.00 NOK).

2022: Vilde submitted her own Postdoctoral Fellowship grants to the European Commission and to the Research Council of Norway. She currently awaits the start date of our new postdoctoral award. Meanwhile, she is working as Advisor in the Research Support office of the Norwegian University of Life Sciences
https://www.nmbu.no/emp/vilde.leipart

May 2017 - Present Scofield, Sebastian, Degree Program: EVO, Student's College or School: School of Life Sciences, Student Product: Doctoral Dissertation, Dissertation / Thesis / Applied Project Title: Topic: Honey bee metabolic biology and associated behavior, Completion Status: In Progress, Student Level: Doctoral, Mentoring Role: Committee Chair - Doctoral,
Describe any achievements or positions the student has attained:

2025: Wrote 2 first-author manuscripts (Spring 2026 submissions)

2025: Won the journal cover of the Journal of Economic Entomology (photo credit)

2024: Won the journal cover of Journal of Experimental Biology with his image of a honey bee https://journals.biologists.com/jeb/issue/227/18
2024: Published 2 peer review articles
2023: ASU Graduate College Completion Fellowship (full stipend and insurance).
2023: ASU GPSA Research Award ($2,000)
2021: Passed his comprehensive exam

May 2015 - May 2024 Quigley, Tyler, Year Graduated: 2024, Degree Program: ANB, Student's College or School: School of Life Sciences, Student Product: Doctoral Dissertation, Dissertation / Thesis / Applied Project Title: The Structure and Function of the Honeybee Blood-Brain Barrier, Completion Status: Completed, Student Level: Doctoral, Mentoring Role: Committee Chair - Doctoral,
Describe any achievements or positions the student has attained:

2025: Submitted 2 first-author manuscripts from his thesis work.

2024: Successfully defended his PhD thesis **https://keep.lib.asu.edu/items/193351**
2024: 2 peer reveiw articles accepted and 1 additional submitted
2024: Hired as Technical Specialist at Calyx Law, a life science patent firm **https://www.calyxlaw.com/**

2023: ASU Enterprise Partners innovation Fellowship, SkySong

May 2011 - Dec 2023 Rasmussen, Erik, Year Graduated: 2023, Student's College or School: Norwegian University of Life Sciences, Student Product: Doctoral Dissertation, Dissertation / Thesis / Applied Project Title: Topic: roles of methylation vs. 5-hydroxymethylation in honey bee epigenetic regulation, Completion Status: Completed, Student Level: Doctoral, Mentoring Role: Committee Chair - Doctoral,
Describe any achievements or positions the student has attained:
Erik has secured a full time position as Head Engineer, Faculty of Veterinary Medicine
Department of Preclinical Sciences and Pathology, Norwegian University of Life Sciences
https://www.nmbu.no/emp/erik.rasmussen

University or Unit Committee Service

Jan 2025 - Dec 2027 SOLS Personnel committee, (School of Life Sciences)

Jan 2024 - Aug 2024 Reimagining SoLS, Personnel committee policy, (School of Life Sciences)

Aug 2023 - Dec 2023 Reimagining SOLS Workgroup on Social Interactions. , (University)

Aug 2022 - Dec 2022 Evaluation committee, application for promotion from Presidential Postdoctoral Fellow to tenure-track Assistant Professor , (School of Life Sciences)

Aug 2021 - May 2022 Director search committee, (School of Life Sciences)

Aug 2021 - Dec 2022 SOLS Seminar Committee, (School of Life Sciences)

Aug 2021 - Dec 2024 Graduate Programs Committee, (School of Life Sciences)

Aug 2020 - Dec 2022 Dean's Faculty Advisory Council, (The College of Liberal Arts and Sciences)

Jan 2020 - Present SoLS Ethics Program Advisory Board, (School of Life Sciences)

May 2019 - Aug 2022 SoLS EVO graduate program, (School of Life Sciences)

Jan 2019 - May 2024 Review Committee for Research Integrity (Office of Research Integrity and Assurance), (University)

May 2006 - Present ASU Honey Bee Facility Committee, (School of Life Sciences)

University or Unit Non-committee Service

Aug 2025 - Dec 2025 Coordinating and performing internal lab move, (School of Life Sciences)

Aug 2025 - Present AI Academy , (The College of Liberal Arts and Sciences)
During each academy session, participants receive expert presentations on the session's topic (e.g. AI Basics, Pedagogical Practices, AI Policy Development), collaborate with colleagues across the College, present the status/findings on their AI action plans to College peers, and receive leadership training on how to implement AI-related initiatives within their unit.

Aug 2024 - Aug 2025 Transfer of leadership, mentoring, (School of Life Sciences)
Peer mentoring SoLS assistant professor Dr. Adrian Fisher to prepare him for the role as Director of the ASU Honey Bee Research Laboratory. Dr Fisher will transition into this directorship in July 2025.

Aug 2023 - Dec 2023 SOLS septennial review, (School of Life Sciences)
Additional reporting on historical data from the ANB program

Jan 2023 - May 2023 Interim Faculty Group Leader, OrgBio, (School of Life Sciences)

Jan 2023 - Dec 2023 Peer teaching evaluations, (School of Life Sciences)
Peer review evaluation in 2023 included Drs. Jon Harrison, Christos Katsanos, and Kevin McGraw

Aug 2021 - Dec 2024 Director, Animal Behavior graduate program, (School of Life Sciences Graduate Programs)

May 2018 - Dec 2024 ASU KED Leadership Academy, Behavioral Genomics, (School of Life Sciences)

May 2017 - Aug 2025 Director, ASU Honey Bee Facility, (School of Life Sciences)

Jan 2017 - Present SIRG, Manage accounts/approving and coordinating sponsoring of student events and activities , (School of Life Sciences)

May 2010 - Dec 2024 SoLS "Ask a Biologist" program, (School of Life Sciences)

Service: Professional Activities

Jan 2025 - Dec 2025 ASU, SOLS, Role or Position: Letter writer,

In 2025, I wrote **letters of evaluation, recommendation or reference for 9 undergraduate and graduate students**: Amalie Strange, James Hardy, Aditi Vannela, Lori Abbas, Rezvan Golmoradizadeh, Marissa Castillo, Jade Angela Bach, John Andary, and Siddhi Motiwala.

Various journals, institutions and agencies,

In 2025, my professional service included:

Academic peer review of manuscripts for: Aging Cell, Biology Letters, Biology Open, Biomimetics, FASEB Journal, Nature, eLife, PLOS ONE, iScience, Journal of Proteome Research.

Academic grant proposal review for: NSF Emerging Frontiers, Cross-BIO Activities and Symbiosis, Infection, and Immunity (SII) Program, Physiological and Structural Systems (PSS) Cluster (asked, declined), Fulbright National Screening Committees (asked, declined), Czech Science Foundation (www.gacr.cz/en), Israel Science Foundation.

Other review task: Candidate review for the Institute for Advanced Study, Berlin.

Jan 2024 - Dec 2024 ASU, SOLS, Role or Position: Letter writer,

I wrote 8 **letters of recommendation or reference for undergraduate students and faculty**: Lelia Retting, Kiran Thallikar, Jessica Willis, Leanna Watts, Dr. Kate Ihle, Bailey Kane, Katherine Derkach, Dr. Abby Finkelstein.

Various peer review journals, Role or Position: Reviewer,

My peer reveiew activities in 2024 included: Journal of Apicultural Research, Journal of Experimental Biology, Archives of Insect Biochemistry & Physiology. Scientific Reports, PLoS One, Comparative Biochemistry and Physiology, Part A, Molecular Ecology, Communications Biology, Journal of Invertebrate Pathology, Animal Microbiome, Apidologie, and Environmental Microbiology.

Various funding agencies and foundations:, Role or Position: Ad hoc grant reviewer ,

My grant review activities in 2024 included: The 2024 ERC Starting Grant “Environmental Biology, Ecology and Evolution” April-May 2024, Czech Science Foundation, July 2024, National Science Centre Poland, September 2024, BARD - The US-Israel Agricultural Research & Development Fund November 2024, National Institute of Food and Agriculture Institute of Food Production and Sustainability USDA CONFERENCE grant proposals November 2024.

Aug 2023 - Present Elsevier, Journal Title: Current Opinion in Insect Science, IF 5.3, Role or Position: Editorial Board Member,

This is my first service on an **editorial board**. I enjoy the opportunity to contribute to the development, evolving scope and policies of a journal.

May 2023 - Dec 2023 Natural Environment Research Council (NERC), United Kingdom, Role or Position: Grant Ad-Hoc Reviewer

The Leverhulme Trust;, Role or Position: Grant Ad-Hoc Reviewer

Jan 2023 - Dec 2023 Various peer review journals, Role or Position: Reviewer,

My peer manuscript reveiws in 2023 included:

Molecular Ecology, The FASEB Journal, Current Opinion in Insect Science, Myrmecological News, Insect Molecular Biology, Current Organic Chemistry, Apidologie, Biological Reviews, Royal Society Philosophical Transactions B, Scientific Reports, Journal of Apicultural Research

Jan 2023 - May 2023 Swiss National Science Foundation, Role or Position: Grant Ad-Hoc Reviewer

USDA-ARS, Role or Position: Reviewer,

I assessed a promotion case for the USDA-Agricultural Research Service (ARS).

May 2022 - Dec 2022 Research Foundation Flanders (FWO), Belgium, Role or Position: Grant Ad-Hoc Reviewer

May 2021 - Dec 2022 Research Councils UK (RCUK), Role or Position: Grant Ad-Hoc Reviewer

Community Activities

Aug 2025 - Dec 2025 2025-08-01, End Date: 2025-12-15, Partner or Community Group: Kyrene de la Mirada PTO/Mirada Strong initiative, Describe community programming or education activities: The Mirada Strong initiative was launched in response to the Kyrene Elementary School District's long range planning, which included the closure of the A+ rated school Kyrene de la Mirada Leadership Academy. The initiative was instrumental in changing the District's plan, allowing this school to remain open. The long range planning information can now be found here: https://www.kyrene.org/about-kyrene/forward

The public-facing part of the Mirada Strong initiative is here:
https://miradastrong.com/
https://www.facebook.com/groups/800666079156445/,
Describe Your Role or Activities:

I worked with other ASU and Intel academics and professionals in the Mirada parent community Slack research group to develop evidence-based strategies and materials. Specifically, I:

1) Used AI to model the impact of school closures on student leakage, which is the loss of student enrollment explained by the ripple effects of school closures alone. The results were summarized in a report and presented to the Kyrene District Governing Board in October and November 2025.

2) Used LLM tools and my own expertise as a theoretical biologist and modeler to analyze the demographic models and modelling assumptions that were made for the Kyrene District by an independent contractor. These results were used by other scientists and professionals in the Mirada Strong initiative to provide transparent materials and well-informed communications to the Kyrene District Governing Board.
Mirada was the first of two schools to be taken off the closure list. Six remaining schools will close by the end of the 2027/28 school year. Here are some news links to document the impact of Mirada Strong.

https://www.abc15.com/news/education/kyrene-elementary-school-district-revises-closure-plan-after-community-feedback

https://www.kjzz.org/education/2025-10-08/kyrene-district-removes-2-schools-from-proposed-closure-list-to-keep-more-students-together

Partner Type: K-12 School, Location, City and State: Kyrene School District, Tempe and Chandler, Arizona, Does your unit consider this activity to be Service or Teaching?: Service

Jan 2024 - May 2024 Partner or Community Group: Kyrene la Mirada Leadership Academy, Describe community programming or education activities: ASU outreach: Science activities for 2nd graders,
Describe Your Role or Activities:

I bring honey bee colonies in glass hives to the school. The students learn about honey bee societies, and the importance of pollination to agricultural food systems and in nature. In 2024, the activity extended over 2 days, so the students had more time to observe the bees and write curiosity-driven questions (1st day) for me to answer on the final day of the activity.
Did you represent an ASU unit? If yes, which?: School of Life Sciences, Partner Type: K-12 School, Location, City and State: Chandler, AZ, Does your unit consider this activity to be Service or Teaching?: Service

Jan 2023 - May 2023 Partner or Community Group: Kyrene la Mirada Leadership Academy, Describe community programming or education activities: ASU outreach: Science activities for 1st and 4th graders,
Describe Your Role or Activities:

I bring honey bee colonies in glass hives to the school. The students lean about honey bee societies, and the importance of pollination to agricultural food systems and in nature.
Did you represent an ASU unit? If yes, which?: SOLS, Partner Type: K-12 School, Location, City and State: Chandler, AZ, Does your unit consider this activity to be Service or Teaching?: Service

Jan 2022 - May 2022 Partner or Community Group: Kyrene la Mirada Leadership Academy,
Describe Your Role or Activities:

I lead a curiosity driven session that combined a glass honey bee hive with a virtual lecture for elementary school children. The hive was delivered to the classroom, and the students could observe the bees for several days and develop questions. We next met by zoom and each student would ask a question for everyone to reflect on. I would guide the discussion and help students find answers.

Did you represent an ASU unit? If yes, which?: SOLS, Partner Type: K-12 School, Location, City and State: Chandler, AZ, Does your unit consider this activity to be Service or Teaching?: Service

Professional Memberships

May 2024 - Present American Association for the Advancement of Science (AAAS)

Jan 2016 - Present Ecology and natural resource management faculty group, Norwegian University of Life Sciences

May 2012 - Present Neuroscience Graduate Program Arizona State University

May 2011 - Present Animal Behavior Graduate Program Arizona State University

May 2008 - Present Molecular and Cellular Biology Graduate Program Arizona State University

May 2005 - Present Center for Social Dynamics and Complexity at Arizona State University

Social Insect Research Group Arizona State University

May 2004 - Present International Union for the Study of Social Insects

Professional Development

Aug 2025 - Dec 2026 Research Security Training, Arizona State University / CITI Program, The Research Security courses provide the knowledge and tools necessary to protect against risks to the global research ecosystem and undue foreign influence.

Aug 2025 - Present AI Academy, The College of Liberal Arts and Sciences, ASU, AI Basics, Pedagogical Practices, AI Policy Development. Collaborate with colleagues across the College, present the status/findings on their AI action plans to College peers, and receive leadership training on how to implement AI-related initiatives within their unit.

Aug 2025 - Dec 2025 AI Product Ideation: Principles and Practical Applications, In this course, Maria Parysz—the CEO and owner of ElephantAI—presents you with the skills to identify and analyze business challenges that you can address effectively with AI. Learn to recognize valuable opportunities for AI-driven solutions and develop strategies to add significant impact within your organization. Explore practical ideation techniques, including how to conduct AI ideation workshops and implement organization-wide strategies for idea collection.

Using AI in Research Projects, LinkedIn Learning (In Learning), Join Cory Lebson—a researcher, author, and former UXPA president—as he gives tips and techniques for using generative AI to enhance, extend, and improve research projects of all types. Cory explains how to look at AI both as something to be researched and as a tool to be leveraged to improve research, as well as how to talk to corporate stakeholders about leveraging AI in your projects.

Leading with Innovation in the Age of AI, LinkedIn Learning (In Learning), Large or small, new or old, for profit or nonprofit, all organizations need to keep innovating to succeed, especially during this time of AI transformation. In this course, strategy experts Anil Gupta and Haiyan Wang teach the multiple ways that any organization can innovate. Learn about design thinking, lean startup, collaborative innovation, social innovation, and digital transformation.

Complete Guide to Generative AI for Data Analysis and Data Science, LinkedIn Learning (In Learning), GenAI has the potential to enable many more people to work with and analyze data, but to succeed, you need a solid foundation in data management, statistics, and machine learning. This course provides that foundation.

May 2025 - Dec 2025 Foundational Math for Generative AI: Understanding LLMs and Transformers through Practical Applications, LinkedIn Learning (In Learning), Unlock the mysteries behind the models powering today's most advanced AI applications. In this course, instructor Axel Sirota takes you beyond just using large language models (LLMs) like BERT or GPT and highlights the mathematical foundations of generative AI. Explore the challenge of sentiment analysis with simple recurrent neural networks (RNNs) and progressively evolve your approach as you gain a deep understanding of attention mechanisms, transformers, and models.

Aug 2024 - Present AI @ ASU Community of Practice, ASU, Monthly 1hr session for the ASU Community (faculty, staff, students) to connect and learn about the latest advancements in AI.

Aug 2024 - Dec 2024 Faculty and Academic Professional Search Workshop, ASU, Mandatory training for members and chairs of faculty search committees at ASU. Each year, faculty are encouraged to participate to stay updated and be qualified for service on search committees.

Jan 2024 - May 2024 Best Practices for Teaching Online, ASU, Online (zoom) webinar for ASU faculty.

Introduction to Workday, ASU, The College hosted webinars led by the Organizational Change Management (HCM Project) team to introduce Workday and enable employees to become familiar with its features.

Aug 2023 - Dec 2023 Faculty and Academic Professional Search Workshop, ASU, Mandatory training for members and chairs of faculty search committees at ASU

USDA's FY24 HSI Education Grants Program, UofA, Webinar hosted by UArizona's Office of HSI Initiatives

The Inclusion Habit., Co-organized by ASU and Association for Women in Science, AWIS. , A pilot course built on 12 weeks evidence-based micro-actions. The focus was inclusive behaviors in student and collegial interactions.

Financial conflicts of interest, ASU, Conflicts of Interest Course for PIs, Online, CITI Program

Jan 2023 - May 2023 Building Networked Communities, ASU Graduate College, Workshop to overview of the new Graduate Persistence Dashboard

Information Security Fundamentals Training, ASU, Online modules and quizzes

IRB Course Refresher/added module, CITI Program , ASU, IRB Course in the area of Social & Behavioral Research

Culturally Aware Mentoring, ASU and the CAM Study Team at the Wisconsin Center for Educational Research, In-person and online workshops and course work to reflect on and learn more culturally aware mentoring strategies.

Aug 2022 - Dec 2022 Inclusive Communities - Faculty Training, ASU, Online education program that equips learners with the information and skills necessary to create a respectful and welcoming environment for everyone and engages all learners regardless of ability, race, ethnicity, socioeconomic status, religion, or gender identity.

Aug 2022 - Dec 2026 Human Research (Curriculum Group) IRB – Social & Behavioral Research , CITI Program course, Virtual, History and Ethical Principles
Federal Regulations for Protecting Research Subjects
Informed Consent
Research with Prisoners
Research in Educational Settings

Aug 2022 - May 2023 Mutually Enriching Mentorship (MEM), Earth Systems Science for the Anthropocene Graduate Scholars Network, MEM provides the structure, resources, and training necessary to shift the culture of mentoring within and across academic units with resources to
• address cultural awareness and sensitivity
• address power dynamics among students and faculty
• provide a toolkit for culturally responsive feedback to aid in conflict resolution
• a space to meet with your faculty peers and provide support from CIMER and CRP facilitators

Collaborators

Jan 2023 - Present Collaborator's Name: Reed Cartwright and Marco Mangone , Collaborator's Institution / Organization: SOLS/Biodesign,
Collaboration Outcomes:

This collaboration is already resulting in a co-authoed paper, in preparation: Leipart V, Cartwright R, Sandve S et al. 2024 Biogeographic population study of honey bee vg gene. *Manuscript in preparation for Molecular Biology and Evolution*
Reed and Marco have expertise on DNA bioinformatics and RNA functional elements, respectively. We are working together to understand Vg allelic variants including intronic microRNAs.

Aug 2021 - Present Collaborator's Name: Geraldine Wright, Collaborator's Institution / Organization: Oxford University, UK,
Collaboration Outcomes:

Successful grant application to the Reseach Council of Norway 2022.
Jeri is an expert in insect nutrition and (brain) cognitive physiology, with focus on honey bees. Her knowledge is required for deliverables on my project 2023-2027, Research Council of Norway, entitled Boosting the bee: Leveraging the structural capabilities of the lipoprotein Vitellogenin to support
honey bee (Apis mellifera) health.

Collaborator's Name: Adam Dolezal, Collaborator's Institution / Organization: University of Illinois,
Collaboration Outcomes:

Successfful grant application to the Research Council of Norway $960K 2022.
Adam is an expert in insect immunology, with focus on honey bees in the commercial context. His knowledge is required for deliverables on my project 2023-2027, Research Council of Norway, entitled Boosting the bee: Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee (Apis mellifera) health.

Collaborator's Name: Kate Ihle, Collaborator's Institution / Organization: USDA,
Collaboration Outcomes:

Successful grant application $960K to the Research Council of Norway 2022
Kate and I will develop honey bee strains homozygous for specific protein (Vitellogenin) variants.

Jan 2021 - Present	Collaborator's Name: Vilde Leipart, Collaborator's Institution / Organization: University College of London/Norwegian University of Life Sciences, Collaboration Outcomes: Successful grant application to the Research Council of Norway $960K 2022. Modernization of the Vitellogenin protein structure (several articles from Vilde's PhD thesis). Vilde is an expert in protein structural biochemistry. Her knowledge is required for deliverables on my project 2023-2027, Research Council of Norway, entitled Boosting the bee: Leveraging the structural capabilities of the lipoprotein Vitellogenin to support honey bee (Apis mellifera) health.
Aug 2012 - Present	Collaborator's Name: Dalial Freitak, Collaborator's Institution / Organization: University of Graz, Austria/Dalan Animal Health Inc, Collaboration Outcomes: Several published articles as well as 2 articles submitted/in progress One patent: PCT/FI2016/050541 – Patent “Edible vaccination against microbial diseases” One company: https://www.dalan.com/ One USDA approved vaccine, world's first for honey bees https://www.npr.org/2023/01/06/1147342961/honeybee-population-vaccine Basic research on mechanisms of Vitellogenin action in honey bee immunity, invovling Dalial Freitak (my previous postdoc), Heli Salmela (my previous graduate student), and my graduate students Gyan Harwood and Vilde Leipart
Aug 2006 - Present	Collaborator's Name: Oyvind Halskau, Collaborator's Institution / Organization: University of Bergen, Norway, Collaboration Outcomes: Several peer reveiw articles and co-mentored graduate students. Multiple successful grant applications to the Research Council of Norway, most recently in 2022. Oyvind is a structural biochemist with considerable expertize on lipo-proteins. My research focus is on the lipo-protein Vitellogenin, and Oyvind and I have worked togeter for almost 20 years on this topic. Oyvind has central tasks on my new project, including synthetic vector development (based on Vitellogenin) designed for transcriptional regulation.