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CLASnotes

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The Dean's Musings

A Research Opportunity

You've probably heard something about the Provost's new undergraduate research initiative. My purpose here is to review the process by which students and faculty may work together under sponsorship of the University Scholars Program, the official name of the undergraduate research initiative that encompasses many UF colleges. I encourage you to look into this. Please note that students and faculty from all CLAS divisions are eligible, humanities through the natural sciences.

Details of the program are to be found on the university Web site—www.ufl.edu/scholars. Please refer students to this site, where they will find an overall description of the program, a list of potential faculty mentors, an application form, and specific college guidelines. By March 15, students must have applied, with the support of a faculty mentor, for one of the 35 awards assigned to this college. Students may also apply through other colleges if they are interested in working with a specific faculty member in that college.

Students will apply through the academic departments, each of which will be permitted to forward up to three selected applications to the CLAS Office, although larger departments may make a case for a slightly larger number, based on the size of their faculty and the number of applicants. A College committee will select 35 applications to be forwarded to the Provost, where final decisions will be made.

Priority will be given to rising seniors anticipating graduation in Spring or Summer, 2000. The selected students will pursue scholarly activities under the direction of a faculty member in summer, 1999 for which they will receive a stipend of $2,500. Students and their faculty mentors will also be awarded $500 for research expenses, such as books, travel to conferences, etc.

Following the summer, 1999 research, students will be expected to continue research under their mentors' direction during the 1999-2000 academic year, registering for an appropriate research course each

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Early Detection of Autism

UF psychologist hopes movement disorders may prove valid diagnostic marker

Although there is no cure for autism, CLAS psychologist Philip Teitelbaum hopes that a diagnostic technique his research team is developing will eventually help parents and pediatricians seek treatment for the disorder early enough to curtail and possibly even reverse its effects.

Philip Teitelbaum (right), Jennifer Nye (center) and Osnat Teitelbaum study home videos of known autistic children to pinpoint movement disturbances that can be used for early diagnosis of the disorder.

"Too often we hear from parents of autistic children that despite their early concerns, a pediatrician assured them their baby was perfectly normal—would grow up to be the president of the United States—when in fact, the child is autistic," Teitelbaum says. "It's not until the child is three or even as old as five, when verbal or social limitations become obvious, that diagnosis occurs."

The key to earlier diagnosis, explains the Graduate Research Professor, is observing for specific movement anomalies, which he feels are integral to the disorder. According to Teitelbaum, autistic children learn to sit up, turn over and crawl in noticeably different manner than normal children, a function of the same wiring problem in the central nervous system that later causes the social/verbal symptoms commonly associated with the condition. Since Teitelbaum's research indicates the possibility of detecting these movement problems at three to six months of age, autistic babies may soon be able to receive early treatment therapies during crucial brain development (zero to two years of age).

Although researchers have noted movement abnormalities in autistic individuals before, the current literature on autism overlooks or denies the possibility that movement disturbances are a *symptom* of the disorder. For example, Bernard Rimland, a leading researcher in the field, wrote in a 1993 article that it was "ludicrous" to think movement problems were typically involved in autism.

Teitelbaum became convinced otherwise several years ago. While studying a gait disorder commonly found in patients suffering from Parkinson's disease, he attended a talk that changed the focus of his research. "I heard my colleague UF psychiatrist Ralph Maurer deliver a paper on similarities between the way Parkinsonian adults and autistic children walk," he explains. Teitelbaum's curiosity was piqued, and after he and his wife, Osnat, a movement analysis expert, examined videos of autistic children, they felt sure that a movement disorder was indeed a key component of the condition.

Next, the Teitelbaums advertised in the monthly publication of the National Committee on Autism and on the e-mail list run by the Autism Society of America, requesting early videos of autistic children. They received 17 such videos (shot well before the children were diagnosed). Together with doctoral student Jennifer Nye, the Teitelbaums taped key parts of these videos—the

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This month's focus: Psychology

DEPARTMENTS

COMMUNICATION SCIENCES & DISORDERS

Linda Lombardino has become a fellow of the American Speech Language and Hearing Association. Of the association's 90,000 members, only 20 or so achieve this honor per year.

ENGLISH

Nancy Reisman's story collection *House Fires* has been selected for the 1999 Iowa Short fiction Award. The University of Iowa Press will publish the collection later this year.

Stephanie Smith gave a performative reading of her latest fiction at the Dixon Place Theater in New York City (Soho) on December 16. Her essay "Suckers" has just appeared in the journal *Differences* (10.1).

MATHEMATICS

Phil Boyland gave an invited special session talk entitled "Isotopy stable dynamics relative to compact invariant sets" at a meeting of the American Mathematical Society in Winston-Salem in October of 1998.

Scott McCullough gave an invited special session talk at the Fall South East Sectional Meeting of the American Mathematical Society in October. The title of his talk was "Commutant lifting on a two-holed domain."

SOCIOLOGY

In December, **Mike Radelet** presented a series of public lectures at the University of Westminster Law School in London, England, where he has been a visiting professor of law since 1995. From there he travelled to Harare, Zimbabwe, where he represented Amnesty International at the meetings of the World Council of Churches. Just before Christmas, outgoing Chief Justice of the Florida Supreme court Gerald Kogan (a former death penalty prosecutor) was quoted in newspapers throughout the state praising Radelet's work showing the inevitability of executing the innocent.

WOMEN'S STUDIES AND GENDER RESEARCH

Sue Rosser gave three invited lectures in Sweden in September: "Gender Bias in Clinical Research" at the Karolinska Institute in Stockholm, "Gender Differences: Implications for Research Design and Curricular Practices" at the Nordic School of Public Health in Goteborg, and "Implications of Feminist Theories for Genetic Engineering and Reproductive Technologies" at the Women's Studies Program at the University of Goteborg.

Physics Department to Host Collaborative Meeting on $500 Million NSF Project

The Physics Department will host a meeting March 4-6 for scientists from the US and abroad who will be participating in The Laser Interferometer Gravitational-Wave Observatory (LIGO) experiment. The LIGO project, a $500M effort funded by the National Science Foundation, is a pioneering effort to design and construct a novel scientific facility—a gravitational-wave observatory—that will open a new observational window on the universe. UF is responsible for construction of a major LIGO subsystem.

Participants in the UF meeting will discuss ideas on improving LIGO detectors, better analyzing data from these detectors and creating software to look for gravitational waves from stellar pairs that collapse into one another. Further details can be found at the conference Web site www.phys.ufl.edu/~mueller/LSC.html.

Mathematics Department Awarded GTE Grant

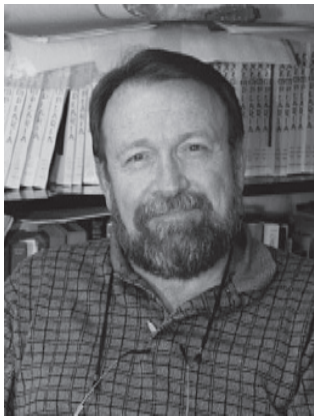
The Department of Mathematics was awarded a GTE Focus Grant in the amount of $30,000 to develop a summer program for minority students from local high schools. The intent of the program is to increase students' interest and background in mathematics, and ultimately to increase the likelihood that they will major in mathematics or related fields. The program will include a technology component, including the use of graphing calculators and the MAPLE symbolic algebra package. Six one-week modules on mathematics topics outside the usual curriculum will be presented, including fractals and chaos, game theory, number theory, combinatorics, graph theory, and probability. The program will include small group work, plus some outside speakers.

UF to Host International Particle Physics Conference in March

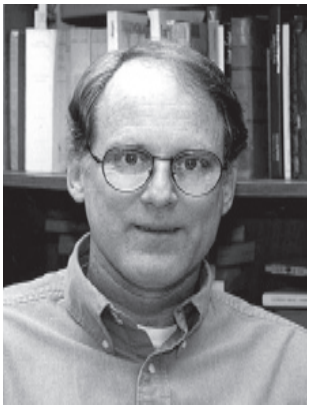
The Physics Department is hosting an international conference on particle physics March 8-11. The conference, titled "Higgs and Supersymmetry: Search and Discovery," will host about 100 physicists from around the world to evaluate the prospects for new discoveries at particle accelerators currently under construction. Top on the list for particle physicists is the Higgs particle, which is a key ingredient for objects to have mass, and Supersymmetry, which allows for all forces including gravity to be unified into one. Conclusive results on both searches are expected within the next 5-10 years. The University of Florida participates on two large experiments near Chicago and Geneva which are tackling these issues. Further details can be found at the conference web site: http://www.phys.ufl.edu/~rfield/higgs_susy.html.

Around the College

Three CLAS Professors Win One-year NEH Grants Worth $30,000 Each



R. Allen Shoaf (ENG) will use his grant to continue working on a study of autobiography in late medieval English writing. He will concentrate, in particular, on the works of Geoffrey Chaucer and Thomas Usk. Shoaf recently edited and is currently translating Usk's *Testament of Love* (under contract with the University Press of Florida).



David Pharies (RLL) will use his fellowship to complete his current research project, entitled *Etymological Dictionary of Spanish Suffixes*. The dictionary will explain the origin and history of some 350 final elements in Spanish, including suffixes transmitted in popular speech from Latin (-anza), learned suffixes borrowed from Latin (-ancia) and Greek (-ia), and several categories of suffix-like final elements, including elements of Greek compounds (-fobia).

Nora M. Alter's (GSS) project investigates a relatively new cultural and technological medium: the essay film. "Like its literary and philosophical ancestor, the written essay," says Alter, "the essay film is a hybrid medium located between narrative fiction and historical fact, truth and artifice. It poaches across traditional boundaries to constitute one of the most significant, and neglected, forms of social and cultural commentary, criticism, and (self) reflection in an age increasingly dominated by other technologies." Additionally, her project seeks to bridge the increasing divide between traditional literary studies and film studies.

1999 Women's Studies Spring Colloquium

Friday, February 12 4PM
The Department of Sociology & The Center for Women's Studies and Gender Research present:

Lived Realities and Identity Work in Support Groups for Battered Women
by Donileen Loseke of University of South Florida.

Wednesday, February 24 3:30 PM
The Center for Women's Studies and Gender Research presents:

Magical Realism or the Fantastic in Enchi Fumiko's "Wicket Gate": An Investigation of the Japanese Supernatural
by Yumiko Hulvey of African and Asian Languages and Literatures at the University of Florida.

Both colloquia will be held in the Ruth McQuown Room, 219 Dauer Hall.
Call 392-3365 for more information.

McQuown Award Deadline Approaching

Undergraduate and graduate women are invited to apply for the O. Ruth McQuown Scholarship Awards through the College of Liberal Arts and Sciences. These awards honor UF's female scholars in the humanities, social sciences, individual interdisciplinary studies (that include social sciences/humanities) and women's studies.

For undergraduates, up to five awards of varying amounts will be awarded. In past years, awards have ranged from $500 to $3,000. The deadline for applications is **FEBRUARY 22**.

Graduate awards include a $8,000 prize and tuition remission to a student who has completed at least one semester of graduate work in CLAS. The deadline is **FEBRUARY 22**. A $10,000 award and tuition remission will honor an incoming graduate student nominated by the department to which she has applied. The deadline is **FEBRUARY 10**. Smaller awards to supplement assistantships will also be given to several current and incoming students.

The most important criterion is academic achievement and promise. In addition, the committee may consider contributions or likely contributions to the student's university, local, or larger community. Applications and additional information are available in 2014 Turlington Hall. Two letters of recommendation are required. ***For more information, contact CLAS Associate Dean Patricia H. Miller at 392-6800 or pmiller@psych.ufl.edu.***

Mathematics Ups the Ante

Krishnaswami Alladi discusses new initiatives in Mathematics Department

The Department of Mathematics is making a concerted effort to gain increased visibility for its research. "We are going to have enormous activity in Spring 99," says department chair Krishna-swami Alladi.

For starters, the department is initiating two series of distinguished colloquia, one in pure and one in applied mathematics. The distinguished colloquium in pure mathematics is named after Paul Erdös, one of the legends of twentieth century mathematics, who before his death in 1996 regularly visited UF each spring for two weeks. "He collaborated with many UF mathematicians and had a profound impact on our department," says Alladi. Rather than maintaining a permanent appointment, Erdös criss-crossed the globe ceaselessly during his 50-year career to collaborate with other scientists, and he was especially known for visiting, encouraging and supporting aspiring mathematicians, including a young Alladi. The first Erdös Colloquium will be given on March 15 by Professor Ronald Graham (of AT&T), a noted researcher and speaker and former president of the American Mathematical Society.

The distinguished colloquium in applied mathematics is named after Stan Ulam, an outstanding applied mathematician who served on the Los Alamos atom bomb project during World War II. Ulam was a graduate research professor in the UF math department between 1974 and 1984. "Creating these two distinguished colloquia is our way of remembering these great mathematicians and building on our legacy," Alladi explains. Both colloquia are to be given by persons of eminence on topics of relevance to many disciplines at UF. The first Ulam Colloquium, for example, given January 11 by Jim Keener of the University of Utah, was on "The Mathematics of Sudden Cardiac Death."

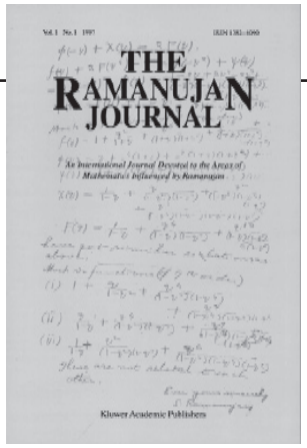
Other events in the spring include the American Mathematical Society's Southeastern Sectional Meeting, which will be held in Gainesville March 12-13. Over 250 attendees from the US and abroad will participate in 16 special sessions devoted to various areas of mathematics. UF Graduate Research Professor John Thompson and UF Professor Alexander Dranishnikov will give one-hour invited addresses at the meeting.

Later in the spring, the mathematics department will co-sponsor with the Center for Women's Studies and Gender Research and the Institute for Fundamental Theory the visit of Professor Ingrid Daubechies of Princeton University, a world authority in the theory of wavelets. Professor Daubechies will give a popular lecture on wavelets on April 1 as part of the Women in Science program.

Starting next fall, the department will conduct two mini-conferences per year. These conferences will provide excellent opportunities for math faculty and graduate students to interact with experts from around the world and gain greater exposure for CLAS research.

Currently bringing attention to the department is *The Ramanujan Journal*, created in 1997 by Kluwer Academic Publishers. Edited by Alladi and co-edited by UF professor Frank Garvan, the journal devotes itself to the publication of papers in all areas of mathematics influenced by Srinivasa Ramanujan, a mathematical "genius" from India, who made startling discoveries in the early part of this century (see inset). With the success of *The Ramanujan Journal*, Kluwer Academic Publishers has initiated a new book series called *Developments in Mathematics*, also with Alladi as editor. This book series will publish research monographs, contributed volumes, and refereed conference proceedings, including the proceedings of some of the mini-conferences at UF.

The mathematics department has an active applied mathematics program with several faculty members (Yunmei Chen, Gang Bao, William Hager, Bernard Mair, James Keesling, Tim Olson, Shari Moskow and David Wilson) involved in cross-disciplinary research. With President Lombardi's increased emphasis on the biological sciences, the department will be opening up a new faculty line in mathematical biology, expanding these cross-disciplinary efforts.✎



Ramanujan story spurs interest in math

Good Will Hunting has nothing on Srinivasa Ramanujan (1887-1920), the legendary Indian mathematician after whom the mathematics department's new journal is named. "What is special about Ramanujan," says Math chair Krishnaswami Alladi, "is that he discovered astonishing mathematical results which provided connections between certain areas of mathematics that previously people had not suspected. He was able to produce these results in succession without any formal mathematical training. He would get up in the middle of the night and write down formulas that came to him in dreams."

Convinced that Ramanujan was a genius, English mathematician G.H. Hardy persuaded him to come to England to study and work. During his five years there, Ramanujan's impressive research earned him Fellowship in the Royal Society and Trinity College. Illness—his "peculiar" diet and habits combined with what most think was tuberculosis—forced Ramanujan's return to India in 1919, where he died a year later at age 32. "The very mention of Ramanujan's name reminds us of the thrill of mathematical discovery," Alladi says. "Today, we realize that his work is more fundamental than Hardy had ever imagined.....His equations are now being used to compute pi (the ratio of the circumference of a circle to its diameter) to a billion digits!"

Like *Good Will Hunting*, Ramanujan's story attracts a wide audience, and Alladi thinks the legendary mathematician's appeal can be instrumental in getting kids involved in math. Alladi's annual Ramanujan talks to high school students in India have already resulted in several students choosing mathematics as a career. In fact, one of these students won the first American Mathematical Society Award for undergraduate research. "A distaste or a love for math can be developed very early," claims Alladi. "There's no gray. So we could do a lot in terms of inspiring students by telling them about the remarkable Ramanujan, weaving the math into the story to get their interest going."

Studying Self Injury

An interview with CLAS psychology professor Brian Iwata

Iwata, who studies self-injurious behavior, originated the Florida Center on Self Injury with a NIH grant he brought with him when he came to UF in 1986 [the Center has been funded by the Department of Children and Families since 1990].

Cn: What is self-injurious behavior?
BI: Self-injurious behavior or SIB is a disorder involving repeated self-infliction of physical damage, including face hitting, head banging, biting, scratching, eye poking, chronic vomiting and the ingestion of dangerous materials. The prevalence of SIB is highest among individuals with mental retardation and related developmental disabilities.

Cn: What causes SIB?
BI: Thus far, most research suggests that SIB is a learned behavior disorder.

Cn: So the behavior is a response to reinforcers, negative or positive?
BI: Exactly. When you look at an individual who is bleeding, you have to do something. So if that individual doesn't have, say, language to communicate, but learns that every time s/he is hurt a caring adult will come attend, then that behavior takes on communicative properties, just as raising a hand would...only in this case, it's fairly dramatic. Similarly, if one finds oneself in a very demanding situation like a work situation, which many individuals with mental retardation are required to participate in, one may start to engage in a variety of what we call "escape behaviors," including disruption, aggression, or SIB.

Cn: Is there a profile for the typical person who engages in SIB?
BI: No. There are no reliable predictors. It occurs across the age span and the developmental span. Usually SIB begins by late adolescence, and we've seen it in children younger than a year.

Cn: With the behavior arising so early in some children, do scientists think there might be a neurochemical imbalance associated with SIB?
BI: One current hypothesis about the origins of some SIB cases is based on possible brain disorder involving neurotransmitters, an area in which one of our new faculty members, Darragh Devine, specializes. A lot of interesting research is being done in that area, but a great deal more is needed before any conclusions can be made about the role of neurotransmitters in the development or maintenance of SIB.

Cn: Describe the Florida Center on Self Injury and your work there.
BI: We are one of very few research programs funded by the state (most state-funded programs are service oriented), and as a result we are given a fairly wide latitude for how to conduct our mission. We have a residential day training component and a community component. We've been treating SIB residents at Tacachale [here in Gainesville] for more than nine years and have treated almost all of the residents there with that problem.

We will now begin working more in the community because prevention or treatment of mild SIB may significantly reduce the likelihood of institutionalization in the first place. We are currently negotiating with the Association for Retarded Citizens (ARC), which offers a variety of services, for example, pre-school, vocational, and small-group residential programs, to individuals living in the community.

Part of our mission is the clinical-research program, which blends service and research, and also provides a context for training. Seven doctoral students currently work with me, and the program also forms the nucleus of an undergraduate lab course, in which we have provided a combination of academic, clinical, and research experience to over 300 undergraduate students during the last six to seven years.

We also serve as a state-wide resource center. If someone in Pensacola is treating a person with SIB, for example, that person can call or e-mail us, and we can provide them with information from our computerized data base, which contains about 2500 references to research on behavior disorders. So if we receive an inquiry about cigarette butt ingestion (Pica) or chronic vomiting as behavior problems, we can give that caller an in-depth list of references, saving him/her weeks or months of research.

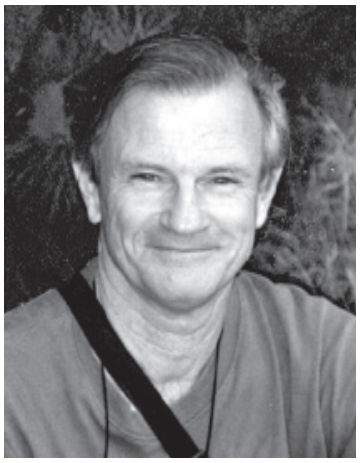
Our other component is consultation. When very serious SIB cases are identified in the State—usually involving problems related to outplacement recommendations, jurisdiction, or funding—we are asked to evaluate the case and make recommendations.

Cn: The Florida Center on Self Injury is widely considered the best program of its kind in the country. What are your long-term goals for the Center?
BI: One certain goal is to have a direct impact through the service we provide, but our larger goal is to produce and disseminate new knowledge regarding the assessment and treatment of SIB, which will benefit not only those individuals we serve directly, but others also. For example, we developed the assessment procedures that are now considered to be standard in the field. All of the major clinical research programs in the country who conduct assessment of SIB use the procedures we developed, which puts us in a position to be at the forefront in developing and evaluating new treatment procedures also.

Cn: Sounds exciting.
BI: It is, but it keeps us busy [laughs].✎

New Program Heads

Harvey B. Lillywhite (Zoology)
Director of Seahorse Key Marine Laboratory



"The UF Marine Laboratory at Seahorse Key is located 57 miles west of Gainesville on the Gulf Coast, three miles offshore from Cedar Key. It is a field station committed to providing (a) support for multidisciplinary research by students, faculty, and visiting scientists, (b) an outstanding teaching program in marine related subjects, and (c) support for public education related to marine, estuarine and coastal resources of the state of Florida. Seahorse Key is part of the Cedar Keys National Wildlife Refuge and is a strategic location for ecological studies, particularly those related to environmental change. Research and teaching activities using the Marine Laboratory facilities include undergraduate projects, masters and doctoral theses, and faculty research connected to a broad range of departments and programs including Zoology, Botany, Fisheries and Aquaculture, Geology, Environmental Engineering, and Wildlife Conservation."

Jon Reiskind (Zoology)
Coordinator, Biological Sciences Program

"The Biological Sciences Program combines the talents of the Botany and Zoology faculties to provide undergraduate students with a firm foundation in the biological sciences. It not only serves all the life science majors at UF, but gives the premed and other prehealth professional students their biological fundamentals as well. In addition, it provides non-science students the biological background with which they can better fulfill their responsibilities to themselves and their communities, making them more aware of the natural environment and their own health in a technologically complex world."
Zoology Undergraduate Web Page: http://www.zoo.ufl.edu
Undergrad Biological Sciences Program Web Page: http://www.bsc.ufl.edu

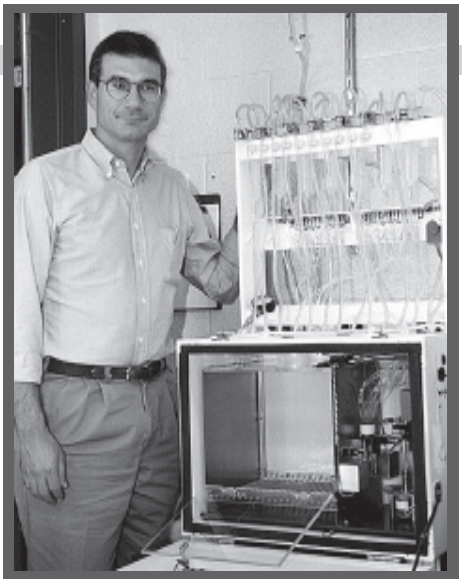
New Faculty

Doreen Blischak joins the UF Department of Communication Sciences and Disorders from Ball State University, where she was an assistant professor. She received her PhD in speech-language pathology from Purdue University. Her research focuses on literacy development and use of synthetic speech by nonspeaking individuals. She recently completed a study involving early reading development and is now conducting a study on the use of synthetic speech to promote spelling in disabled children. She teaches courses in augmentative and alternative communication. Her outside interests include hiking, gardening, beach combing and skating.

Marta L. Wayne, an assistant professor of zoology, earned her PhD in molecular population genetics from Princeton University. Before coming to UF, she was a postdoctoral research fellow at North Carolina State University. Her research interests include quantitative genetics, molecular population genetics, and issues of gender and science. As an evolutionary biologist, she is also interested in how genetic variation is maintained in natural populations for quantitative traits. She teaches courses in genetics, evolutionary genetics and core biology. In her spare time, she enjoys hiking, writing and cooking.

Rats and Taste

by Alan Spector, Department of Psychology

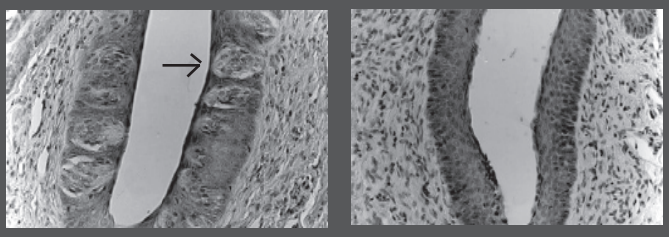


Alan Spector stands beside the gustometer, an apparatus that serves as a "behavioral microscope" to examine the taste sensitivity of rats.

Most of us take the sense of taste for granted. But if we were suddenly thrust from the shelter of civilization into the wilderness, where foods are not labeled with their ingredients as they are in the supermarket, the value of our chemical senses would perhaps become more apparent.

Animals in the wild use their chemical senses in a variety of ways, one of which is to help guide their ingestive behavior. Taste provides an animal with information about the chemical composition of food and fluid, especially regarding compounds that are not particularly volatile and thus do not stimulate the olfactory system. If an animal ingests a relatively novel tasting food followed by an episode of gastrointestinal distress, it will subsequently avoid eating that same food again. This is true even if the onset of malaise was delayed by as much as 12 hours!

This phenomenon is referred to as taste aversion learning and it serves the very adaptive purpose of preventing animals from ingesting potentially toxic substances a second time; humans are not immune to such processes and reports of learned taste aversions to novel tasting alcoholic beverages are not uncommon.



Spector uses rats in his research to model nerve regeneration in the oral cavity. The arrow (*above left*) points to one of many magnified taste buds of a rat. When the taste nerve is severed, the taste buds disappear (*above, right*). Taste nerves, however, have an unusual proclivity to regenerate and reinnervate their appropriate oral locations, causing taste buds to reappear.

In addition to using tastes as learned signals, animals—including humans—are born with some innate taste preferences and aversions. Human infants, just hours after birth, will display characteristic oral acceptance and rejection reflexes depending on whether a taste stimulus placed on the tongue is sweet or bitter. Many toxic plants are bitter tasting and animals naturally avoid them, whereas many energy rich foods, such as fruits, are sweet tasting and actively ingested.

Of course, there is no way to really know whether animals experience bitterness or sweetness as humans do (in fact, there is no way to know whether the experience of sweetness or bitterness, etc., is exactly the same in two human observers). This doesn't mean, however, that the taste sensations of animals cannot be studied scientifically. A research area referred to as animal psychophysics was developed by psychologists interested in studying sensory processes in nonhuman (and thus nonverbal) animals. These inventive testing procedures have allowed researchers to ask animals questions about their sensory experiences. Indeed, these techniques have proven invaluable in efforts to understand the neural basis of sensation and perception.

In my laboratory, we apply animal psychophysical procedures in experiments aimed at understanding how the nervous system represents information about taste stimuli. Our behavioral microscope, so to speak, is an apparatus we refer to as a gustometer. This device is designed for use with rodents and allows us to deliver small volumes of taste stimuli and measure immediate responses. Using the gustometer, we have trained rats to press one lever in response to sampling sodium chloride (NaCl) and the other lever in response to potassium chloride (KCl). The fact that rats can perform reliably in such a task implies that they can discriminate between the respective tastes of these two physiologically significant salt stimuli. If we surgically transect the chorda tympani nerve, which transmits gustatory signals from the taste buds on the front of the tongue (rats are anesthetized during this procedure and carefully monitored postsurgically), the performance of the rats on this salt discrimination task is severely impaired.

In contrast, if the glossopharyngeal nerve, which innervates four times as many taste buds located on the posterior tongue, is transected, discrimination performance is entirely unaffected. Both nerves and their associated taste receptor cells respond to NaCl and KCl, but it appears that the way the nervous system uses information from the two nerves differs.

My laboratory is funded by the National Institute of Deafness and Other Communication Disorders (chemical senses research is a component of this institute's mission) to study the functional consequences of gustatory nerve injury and regeneration. Taste buds, each of which consist of about 50 taste receptor cells forming a bud-like shape, are distributed in distinct fields in the oral cavity (front and back of tongue, palate, and near the larynx). These fields of taste buds are innervated by four different nerve branches. We have developed a battery of behavioral tasks, each focusing on a different aspect of taste function that helps us assess the role of gustatory input from the different fields of taste buds in the mouth.

Interestingly, when taste nerves are severed they have a great proclivity to regenerate and reinnervate their appropriate receptor field. When the chorda tympani regenerates, only 70% of the taste buds reappear (they disappear upon nerve tran-

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Autism, continued from page 1

children attempting to master developmental milestones like turning over, walking and crawling—on a optical disc recorder, which made careful, blur-free, frame-by-frame movement analysis possible. Using footage of 15 "normal" babies as a control, they examined and documented the children's movements using Eshkol-Wachman Movement Notation (EWMN). EWMN is a general analysis system in which spherical coordinates are applied independently to each segment of the body. By distinguishing between which segments are actively moving versus those that are being carried passively along, a deeper understanding of abnormal movement is possible.

The results of their analysis were astounding. Every single autistic child demonstrated *at least* one movement disturbance by six months of age. The group published an article in the November 10, 1998 issue of the *Proceedings of the National Academy of Sciences* detailing their findings. Osnat, who studied EWMN with the Noa Eshkol in Tel Aviv for 20 years, points out that this is the first time EWMN has been used in a medical diagnostic context. "It's a pioneering use of the technology," she says, "and may eventually prove useful in the diagnosis of other developmental disorders."

Armed with segments of video, Teitelbaum can demonstrate that among other things, autistic babies have difficulty supporting themselves to crawl. In an ineffectual attempt to move forward, they may rest weight on their elbows and forearms, dig their toes in and lift their rumps. Or, struggling to pull themselves along, these babies might leave one arm underneath the torso while attempting to crawl with the free arm (figure 1) or may crawl atypically, with one leg stepping while the other leg moves normally. Similar movement problems are seen earlier in turning over ("righting," figure 2), and later in walking.

FIG. 1. Asymmetry is common in the movement of autistic infants. The autistic child above drags his right arm underneath his chest, using only his left arm to pull himself forward.

FIG. 2. A normal baby (right), turns over by rotating in corkscrew fashion: first the head, then the torso and legs., Not able to right itself by rotation, an autistic infant (left) arches head and feet upward and then kicks the top leg forward, rolling over en bloc.

Moebius mouth (flat lower lip and arched, oval shaped upper lip) is also present in a number of the children the Teitelbaums observed on video. "Not all autistic children have it," he says, "but when a child does have it, we feel it's a possible indicator of autism." And since the condition is noticeable in autistic infants as young as one month old, moebius mouth may prove to be one of the very earliest signs of the disorder.

An important breakthrough came for the group in January of this year. Teitelbaum was sent early home video footage of twins, and was told one of them had been diagnosed with autism. It was the first time the group was given the opportunity to *predict* the disorder in an unknown situation. Teitelbaum attended the Cure Autism Now (CAN) annual conference in LA January 17 to present his findings. He explained his theory and methods to the audience and then revealed which child on the video was autistic: *both of them*, one severe and the other much less so. The mother of the twins, who had been sitting in the back of the room, stood and said in disbelief, "you are exactly right." Although one of the boys was critically affected by the disorder, she explained, it had later become apparent that the other was mildly autistic, too. "It was an exhilarating moment," remembers Teitelbaum.

Of course, the group still needs to prove that movement disorders are an accurate way to diagnose, but Teitelbaum is optimistic. "If we do a trial using video tapes of 10 autistic children and 20 normal children, all of whom are anonymous, and we're able to pick 10 out of 10—even nine out of 10—with no false positives, then we have a valid predictive method."

With the recent spate of publicity they've received on their important findings (an article in the *New York Times*, a feature on *Good Morning America* and an upcoming segment on *20-20)*, the group is hoping to attract funding for the production of a diagnostic video. "It will be a self-explanatory 'stand alone' video for people all over the world to use to understand and recognize some of the movement disturbances associated with autism," explains Teitelbaum. "We hope it will help parents screen their kids for autism so they can get professional help more quickly, and that it will become required viewing for pediatricians as well."✎

Rats, continued from page 7

section). Nevertheless, salt discrimination performance returns completely to normal. Actually, nerve regeneration is not as novel an event as it may seem for the gustatory system. Taste receptor cells have a life cycle of about 14 days, so that every couple of weeks you have a completely different complement of taste buds. It remains somewhat of a mystery how the system maintains perceptual stability in light of the ever-changing connections that are being formed between the nerve fibers and the taste receptor cells. In any event, animal models of nerve regeneration will ultimately be critical in the development and evaluation of treatments that promote recovery of function in humans sustaining sensory nerve damage in general.

I am privileged to serve as the Assistant Director of the newly formed University of Florida Smell and Taste Center (UFSTC); Dr. Barry Ache, an internationally renowned olfactory scientist from the Whitney Laboratory, is the Director. Our charter members are from various campus departments in the Colleges of Liberal Arts and Sciences, Medicine, Engineering and from IFAS. The primary mission of the Center is to stimulate interdisciplinary discussion and collaboration on chemical senses research.

I am excited by the prospects that the Center offers, and I encourage interested faculty in the College to please contact me for more information.✎

Impeachment and Beyond

by Richard S. Conley, Department of Political Science

As I prepared to commence my academic career at the University of Florida last summer, never could I have imagined that my first semester as a presidency scholar would include the extraordinary events of only the second impeachment trial in the history of the nation. When the Senate trial of President Clinton finally concludes, we will be confronted by a series of challenges. We will need to reflect carefully on the implications for the institution of the presidency, the precedents set by the impeachment, and the historical legacy of first Democratic president since FDR to win election twice in this closing century.

Central to the future of our chief executives is the independent council statute which Congress will be tasked with revising or scrapping this year, particularly if the situation of divided partisan control of the presidency and Congress persists in an environment of heightened partisan conflict in our nation's capital. Kenneth Starr's investigation of President Clinton was, of course, launched under the aegis of this law. The intent of the statute was to address the very genuine question of whether the Justice Department can objectively and impartially investigate alleged misconduct of the president. Moreover, President Nixon's firing of Archibald Cox as the Watergate tragedy unfolded underscored the potential abuse of executive authority in the absence of an independent investigatory mechanism.

Many scholars have now come to view the independent council statute as seriously flawed. Critics point to Starr's four year long quest into the president's affairs, shifting as it did from subject to subject, as the culmination of a potential for "politics by other means." The president's detractors, however, are quick to point out that the investigation might have ended much sooner had Clinton not chosen to deceive his staff and the public for over seven months.

Whatever the case, in a democratic polity process is as important as outcome. Congress must not lose sight of this axiom as legislators look back upon the intent of the statute, reflect upon its utilization during Clinton's two terms, and debate what changes should be made to the law. How we arrived at the point of impeaching a president is every bit as critical as how allegations of high crimes and misdemeanors are ultimately adjudicated in a Senate trial. Whether future occupants of the White House are Democrats or Republicans, open-ended investigations of our chief executive risk paralyzing presidential leadership and damaging the legitimacy of the institution. Moreover, a real danger that may emerge from the impeachment quagmire is the delegitimization of future investigations, before they even begin, into wrongdoing that can threaten the very nature of our constitutional system. The allegations of illegal campaign contributions to candidates on both sides of the aisle in 1996 is but a single example.

Scholars must similarly wrestle with the factors that have guided the impeachment proceedings. In crafting our republican structure of government, the Founders sought to insulate our institutions from public opinion. But public opinion has played an incontrovertibly important role in the process. It may be argued that the Republicans' pursuit of the case against Clinton reflects a disregard for public sentiment. Yet the strong partisan response by House and Senate Democrats seems largely driven by Clinton's public approval ratings, which are indubitably tied to the strength of the economy. The question naturally arises as to whether a president accused of the same misconduct would face a different fate than probable acquittal in light of low public approval and a faltering economy. And while the Founders certainly anticipated that the affair of impeachment would constitute a process more political than truly juridical, would they approve of an outgoing Congress levying charges against a sitting president and leaving the trial to a new set of legislators? The Federalist Papers do not provide adequate insight.

For the moment, the impeachment morass seems to have solidified the rampant apathy of the American electorate, at least if voter turnout in 1998—lower than any other midterm election since 1942—was any indication. But what of Clinton's legacy? Presidential scholar Michael Nelson argues that Americans have regarded the presidency as "savior" in Roosevelt, "Satan" in Nixon after Watergate, and "Sampson" in the weak leadership legacies of Ford and Carter. Talking to friends, relatives, and colleagues, I find elements of each of these models in evaluations of Clinton's two terms. What is striking is the degree to which opinions of Clinton are often so polarized. For some, Clinton is a brilliant politician who fudged the truth and exercised poor personal judgment but who positioned the Democratic party to take advantage of the new realities of the global economy. For others he represents a habitual philanderer and a duplicitous politician who lacks a moral compass, seeking to preempt the Republican agenda out of pure opportunism.

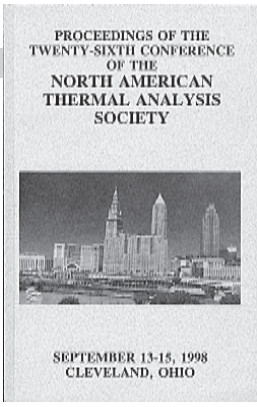
Such polarity may reflect the crossroads that America has reached in terms of expectations for our chief executive: Do we desire policy leadership, symbolic and enlightened moral leadership, or some combination thereof? The answer to this question may tell us much about the nature of presidential politics in the next century. Perhaps the most critical element in Clinton's legacy is whether that metaphorical bridge to the next millennium sets our national discourse on a path of civility and consideration or vacuous, partisan acrimony. As with the seemingly intractable Senate trial at the time of this writing in late January 1999, the jury is still out on that question.✎

Grants (through Division of Sponsored Research)

December 1999 Total $ 1,179,355

Investigator	Dept.	Agency	Award	Title
Corporate...$116,194				
Katritzky, A.	CHE	Glaxo	3,800	Compounds for biological screening.
Katritzky, A.	CHE	Mult Comp	1,258	Software research support.
Katritzky, A.	CHE	Solutia, Inc	65,000	Succinimide chemistry.
Severy, L.	PSY	Unipath, Ltd	35,684	Couple acceptability of the clearplan fertility system.
Hollinger, R.	SOC	Mult Sources	2,890	Security research project.
Marks, R.	STA	San Antonio Spurs	7,562	Spurs recruiting model building.
Federal...$940,303				
Stratford, B.				
Burns, A.	ANT	CDC	70,468	Adherence to highly active anti-retroviral therapy (HAART) among adult patients of an inner city HIV clinic.
Gustafson, B.	AST	NASA	28,050	Optical properties of irregular dust particles: experiment and theory.
Colgate, S.	CHE	DOE	25,000	Acoustic resonance spectrometer.
Hudlicky, T.	CHE	NSF	125,000	Biocatalytic conversion of aromatic waste to useful compounds.
Richardson, D.				
Eyler, J.	CHE	NSF	110,000	Gas-phase chemistry and spectroscopy of mental complex ions.
Yost, R.	CHE	DOA	22,000	Analysis of human and host animal emanations for the presence of attractants to hematophagous diptera.
Shoaf, R.	ENG	NEA	30,000	Thomas Usk's *The Testament of Love and the Testimony of History: The Will to Witness in 14th Century English Writing*.
Martin, E.	GLY	NSF	66,906	ND isotope investigation of North Atlantic deep water population over the past 25,000 years and education in geology.
Perfit, M.	GYL	NSF	42,966	Temporal and spatial variations in mid-ocean magmatism and crustal accretion.
Fradd, S.				
Brown, W., Jr.	CSD	DOE	63,000	Creating Florida's multilingual global work force: Policies and practices for promoting biliteracy.
Sapienza, C.	CSD	US Navy	10,442	Respiratory function during speech production at 1000 FSW.
Rowland, N.	PSY	NIH	150,749	Physiologic mechanisms affect by perinatal NaCl level project 3 of program proj: Influence of early salt diet.
Spector, A.	PSY	NIH	90,975	Project 2: Effect of perinatal salt exposure on taste function program project: Influence of early salt diet.
Spector, A.	PSY	NIH	68,094	Assessment of peripheral gustatory function.
Pharies, D.	RLL	NEA	30,000	Etymological dictionary of Spanish suffixes.
Levy, D.				
Moegensburg	ZOO	EPA	6,653	Are extractive reserves ecologically benign? Fruit harvest and frugivore communities.
Foundation...$30,663				
Dermott, S.	AST	UF	3,150	Dissertation fellowships.
Channell, J.	GLY	JOI	12,153	Geomagnetic field intensity and paleoenvironmental proxies from sediment drifts.
Bjorndal, K.				
Bolten, A.	ZOO	UF	15,000	Sea turtle conservation.
Other...$46,725				
Caviedes, C.	GEO	Misc Donors	1,275	Miscellaneous donors.
Scicchitano, M.	POL	State of Georgia	10,450	Survey design and analysis in Georgia community indicators.
Bjorndal, K.				
Bolten, A.	ZOO	Mult Sources	15,000	Sea turtle research.
Emmel, T.	ZOO	Misc Donors	20,000	Miscellaneous donors.
State...$59,506				
Shenkman, E.				
Wegener, D.	CSD	FHKC	26,905	Healthy kids program evaluation 1997/98.
Leverty, L.				
Scher, R.	POL	FIG	32,601	A proposal to develop the Center for Community Development and Enhancement.

Bookbeat



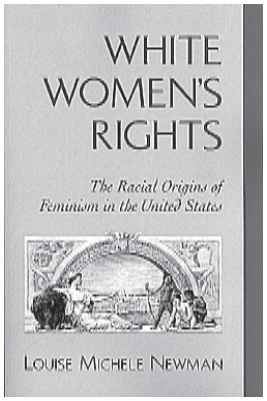
Proceedings of the Twenty-Sixth Conference of the North American Thermal Analysis Society, September 13-15, 1998, Cleveland, Ohio.
Edited by Kathryn Williams (CHE)

The Amazon River Forest: A Natural History of Plants, Animals, and People
Nigel J.H. Smith (GEO)
Oxford University Press

(from book jacket)
In this book, geographer Nigel Smith reviews the natural history of the area from the people's perspective, offering a large-scale portrayal of the culture of the region not found in most books on Amazonia. The book investigates how the ways in which people make a living are entwined with religious and spiritual beliefs, as well as with nature. Smith challenges the notion that the Amazon basin is a demographic void and a cultural backwater, arguing that the region, densely settled in the past, could again become a prosperous agricultural area. He points out that the local inhabitants' knowledge of the basin's natural history is a vital—and sorely overlooked—resource for sound economic development. Topics explored include ecological, cultural, and socioeconomic issues surrounding animal husbandry, domestication of game, annual cropping, agroforestry, and the gathering of forest products. Examining the historical dimensions of various land uses, Smith suggests practical ways to develop the floodplain that enhance, rather than destroy, biodiversity.

Excerpt:
Experience has shown that intensifying food production in Amazonia with heavy reliance on machinery and purchased chemicals for crop protection is risky. The low prices that basic staples fetch in the market endanger any farming with crops that require heavy investment. Much can be learned about how traditional food-producing systems are changing on the floodplain in response to the growing market for staples in towns and cities. Some of the low-cost strategies employed by small farmers could probably be modified to increase yields without damaging the environment.

White Women's Rights: The Racial Origins of Feminism in the United States
Louise Michele Newman (HIS)
Oxford University Press



(from book jacket)
White Women's Rights offers a persuasive and entirely new analysis of the race-based underpinnings of American feminist thought between the 1850s and the 1920s. While previous scholarship had highlighted the ethnocentrism of certain 19th century American women or feminists, Newman demonstrates that feminism itself, as a set of ideas, had an intrinsically racial component. Her argument is original, complex and subtle.

Excerpt:
Prior to the demand for domestic training, all mothers regardless of class or ethnic background, potentially had been equals in their mothering because mothering had been understood as a "natural" quality inherent in womanhood, not a skill to be taught and learned. In demanding training for motherhood (and training for teachers to train mothers), Beecher introduced a new class hierarchy among women--creating new categories of better and worse mothers. Moreover, Beecher's demands for domestic reform and the professionalization of motherhood introduced new racialized divisions among white, immigrant, and black women, since many groups--including enslaved, immigrant and Native American women--were automatically excluded from Beecher's conception because they did not have the kind of homes Beecher conceived as the foundation for "woman's political authority.

Psychology Staff

The Psychology office staff includes Diana Wiliamson, Secretary (left), and Cheryl Phillips, Office Manager (right).

Musings, continued from page 1

semester. A research journal should be maintained by the student to detail scholarly progress and to serve as the basis for regular student-mentor updates. Exactly how this is done may differ considerably within the disciplines.

The culmination of the research experience will involve participation in the University Scholars Symposium to be held in April, 2000, at which students may summarize the results of their research, either in 20 minute oral presentations or by means of poster displays. A distinguished panel of faculty will serve to review and evaluate the student presentations. After the symposium, a luncheon will be held for students, parents, and mentors, hosted by Provost Capaldi and featuring an address by President Lombardi. It should be a grand event.

Some of you will recognize that the University Scholars Program is an elaboration of the CLAS undergraduate research program that currently involves many faculty and students. An immediate difference to be recognized is the financial element. Deeper pockets in the Provost's office permit built-in rewards and incentives for the participants in the University Scholars Program.

Our undergraduate students are among the best in the country by almost any measure of quality. Having these outstanding students work with our top-notch faculty provides the basis for high expectations in undergraduate research. It is a formidable combination. We should be pleased and flattered that the university has chosen to highlight and extend this program, based on the many proven benefits our students obviously have derived from their research participation.

Working with undergraduates one-on-one can also be very stimulating to the faculty. True, it requires considerable effort on behalf of the mentor, but the reward is great. Students learn, often for the first time, that knowledge doesn't just come out of books. It is exciting to see them develop new knowledge in their research, an experience not soon forgotten by faculty or students.

Will Harrison, Dean
<harrison@chem.ufl.edu>

Note from the Chair

Marc Branch, Department of Psychology

The Psychology Department may be the most diverse, with respect to the range of research interests of its faculty, in the College of Liberal Arts and Sciences. We currently have 41 active full-time faculty. To illustrate the broad range of issues that are being studied, let me describe, very briefly, the interests of several of the faculty. These descriptions, coupled with the more lengthy reports of research by Psychology faculty found in this issue, may give you a taste of our diversity.

Dr. Lise Abrams is studying cognitive processes related to verbal memory with a special emphasis on aging. Dr. Dolores Albarracin is conducting research, supported by the National Institutes of Health (NIH), on what makes persuasive communications effective, especially those communications related to AIDS and its prevention. Dr. Darragh Devine is conducting research on the molecular biology of self-injurious behavior as well as neurophysiological studies related to specific morphine-related receptor subtypes. Dr. Timothy Hackenberg is studying, in both humans and non-humans, the factors that influence decisions between short-term and long-term outcomes. Dr. Brian Iwata, in a state-funded project, studies ways of diagnosing and treating self-injurious behavior in persons exhibiting mental retardation. Dr. Benjamin Karney studies the factors that lead to stability or instability in long-term, intimate relationships (like marriage). Dr. Neil Rowland, with funding from NIH, studies neurophysiological processes related to ingestive behavior. Dr. Carolyn Tucker has research programs both on issues related to coping with medical treatment and on methods for producing achievement in disadvantaged children. Dr. Robin West, with NIH support, is conducting research aimed at discovering ways to assist the elderly in minimizing effects of cognitive declines.

The brief listing above reveals research ranging from what cells in a test tube are doing, to what kinds of very simple behavioral processes exist in animals, up to studies of groups of humans. One may justifiably ask, how can all those activities be thought of as belonging to a single discipline? There are those who would suggest that they cannot, or ought not, be thought of as one discipline. I disagree. The core that holds the Psychology Department together is that all of us are focused, in one way or another, on behavior. Just as one can speak of the "unity of the sciences" when speaking of physics, chemistry, and biology, one can speak of the "unity of psychology" when discussing the interrelationships among research specialties in the discipline. The concept of the "unity of the sciences" is that principles and theories of one discipline may not conflict with those of the others. For example, the laws of chemistry must not include violations of the laws of physics. And the laws of physics can provide useful starting points for analyses in chemistry. Similarly, theories about complex social interactions that cannot be reduced simply to the actions of neurons in the brain or to simple, basic learning process, must nevertheless not include features that violate what is known about the more elementary mechanisms. And basic mechanisms can provide a starting point for analyses of more complex issues.

This issue of *CLAS notes* contains just a brief, incomplete snapshot of the wide range of research being conducted in the Psychology Department. Two additional things are of note, especially to undergraduates. One, a complete listing of faculty research interests is available in the Psychology Department office, Room 114 PSY. Two, virtually all psychology faculty try to involve undergraduates in their research programs, so interested undergraduates are encouraged to learn more about what is going on in the department, research-wise, and to get involved.✎

UNIVERSITY OF FLORIDA

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