

## The EC Review

Dan Manvich & Todd Ahern, Executive Committee Student Reps

Your Executive Committee has been hard at work as of late, getting updated feedback from students and faculty concerning changes that have taken place, as well as discussing new and exhilarating possibilities for the program in the future. The start of the spring semester in the Neuroscience Program brings with it the opportunity to make several exciting announcements.

The EC recently had the chance to meet with the 1<sup>st</sup>-year students and hear some positive comments about their first semester here at Emory. Of particular interest was their response to a potentially new addition to the curriculum.

Under the banner of "Techniques in Neuroscience", students participated in on-location, hands-on training with various laboratory techniques, including molecular, cellular, neuroimaging, and behavioral methods. Due in large part to the students' positive feedback, the EC has given approval for the submission of a

course proposal to the Graduate School of Arts & Sciences. While details are still being worked out, we hope to be able to report soon that the course will be offered officially to all incoming Neuroscience students during the fall semester.

Of course, the beginning of the year can mean only one thing – recruitment! The Neuroscience Program has once again attracted many of the top students in the nation and abroad. Recruitment weekends will be held February 15<sup>th</sup>-17<sup>th</sup>, and March 1<sup>st</sup>-3<sup>rd</sup>, 2007. We

will have nearly 50 students interviewing over the two weekends, drawn from one of the strongest applicant pools to date. It will take a large effort to ensure that each of these applicants learns fully all that our program has to offer. For more information

about how to help, please contact one of our student Admissions Committee representatives, Meag Ward ([mward8@emory.edu](mailto:mward8@emory.edu)) or Mike Kelly ([mckelly@emory.edu](mailto:mckelly@emory.edu)).

Special thanks go out to the entire Admissions Committee, including Ping Chen, Amy Lee, Thomas Wichmann, Andrew Escayg, Elizabeth Buffalo, Pete Wenner, Sonia Hayden, and co-chairs Leonard Howell and Shawn Hochman.

As many will recall, in May 2005 the Neuroscience Program applied for a renewal of our NIH training grant support. In the fall of that same year, we were visited by a panel of reviewers who met with various students and faculty members. It wasn't long before we received word that our program had received excellent remarks and scores. The program is now very proud

*(Continued on page 6)*



Todd Ahern



Dan Manvich

## Frontiers in Neuroscience

We have an exciting new line up for this spring's Frontiers in Neuroscience. Be sure to join us every Friday in the Yerkes Neuroscience Seminar room at noon. Below are some special dates to remember:

2/9 Samantha Butler (USC)  
Host: Jacob Shreckengost  
2/16 Jill Bordelon & Seth Jones  
2/23 Klaus Miczek (Tufts)  
Host: Dan Manvich  
3/2 Sara Dodson & Cliff Michaels

3/23 Cynthia Czajkowski (U of WI)  
Host: Kate O'Toole  
3/30 David Wells (Yale)  
Host: Sharon Swanger  
4/13 Peter Gillespie (Oregon HSU)  
Host: Mike Kelly  
4/20 John Gabrielli (MIT)  
Host: Alex Poplawsky

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## Emory Calendar

- February 15-17: Neuro Recruitment weekend 1
- March 1-3: Neuro Recruitment weekend 2
- March 12-16: Spring Break
- May 14: End of Spring Term

## Beyond Graduate School: A Postdoctoral Study in Sweden

Kim Dougherty, International Correspondent

When I started at Emory, getting my Ph.D. seemed so far in the future that it did not seem like reality. I had no idea where I would end up – and never would have guessed that I would have ended up doing a postdoc in Sweden.

I decided to do a postdoc because I want to stay in academia and, eventually, I want to run a lab at a research university. I started thinking about where I wanted to do a postdoc last November, about a year before I actually moved. I began by coming up with a list of potential labs in consultation with my advisor. Then, I narrowed down the list and spoke to my committee members and other neuroscience faculty members to get their opinions, suggestions, and advice. I interviewed with three labs, where I got to meet everyone, talk about current research interests, and discuss potential future directions. It was a difficult decision for me and, in the end, both the science and the location were the deciding factors in choosing to accept a postdoc position at the Karolinska Institute in Stockholm.

I accepted my new position in April, defended my thesis in August, and stayed at Emory until October. I spent the next six weeks between my defense and the SfN meeting finishing up in the lab, revising my thesis, writing a postdoctoral fellowship, making my SfN poster, taking Swedish lessons, and packing up my apartment. I was glad that SfN was in Atlanta this year because my last few months went by really fast and I ended up with a lot to do in the end.

Transitions are always a mix of anxiety and excitement. Working out all of the logistics of moving (i.e. selling furniture, hiring movers, packing, figuring out what to take overseas in my two suitcases, etc.) is a hassle, but I

knew that would all soon fall into place. Initially, I was nervous about moving to a new country where I basically knew no one, didn't know where to live, didn't know how to get around, and didn't even speak the primary language. However, then I remembered doing this all before – and not too long ago! I had the same concerns when I moved to Atlanta before starting in the Neuroscience program. It didn't take long for me to find my niche, make friends, find my way around Emory and Atlanta, get involved in things that I liked doing, know where I liked to hang out, and even understand the Southern accent! The day I realized this was the day my anxiety about moving to Stockholm turned into excitement.

One of the main differences was that I wasn't moving into an incoming class at the Emory Neuroscience program; I was the only person moving into this lab. However, most of the postdocs and students in my lab, and in the other labs on my floor, are not Swedish. So, basically everyone is in the same boat since most moved to Stockholm not knowing anyone. Everyone has been very friendly, which has helped to make my transition easier. When November seemed like an odd time to be moving to Sweden (just in time for the cold winter!), it actually worked out for the best. I was here in time for all of the Christmas parties that started in early December.

Also, Swedes celebrate St. Lucy's Day in mid-December. St. Lucy is not Swedish, so I'm not really sure why it's celebrated in Sweden. I've heard several different versions of who St. Lucy was but the only thing the stories have in common is that she survived being burned at the stake. On St. Lucy's Day, someone

dresses as St. Lucy, wearing all white and a wreath of candles on her head. There's a St. Lucy's Day "train" which includes other characters, such as Lucy's maids, star boys, and gingerbread men. All of the new people in the Neuroscience Department were required to be in the St. Lucy's Day procession. This gave me the opportunity to meet the other new people (my Karolinska Neuroscience incoming class) as we rehearsed Swedish songs for the procession. In the end, I did take Ron Calabrese's advice and made sure that I didn't get suckered into to being St. Lucy.

Scientifically, there are transitions as well. By the time I left the Hochman lab, I felt I had a handle on what was going on and always knew what I could or should be doing (especially in the end when I was racing against the clock). Now, it is strange to be the person who knows the least in the lab (again), having to constantly ask others for help, even if it is just to find where the pipet tips are. It has also been interesting to learn new ways of doing things and to hear different perspectives. Experiments have been slow to start up. This was a welcomed change in the beginning but after a few weeks, I was ready to dig in on a project with full force. Now,

things with my new projects are beginning to pick up.

I am enjoying exploring a new city, learning new lab techniques, and meeting new people. I also miss all of my friends back at Emory (several of whom have also moved or will soon be moving) and the goings-on of the Neuroscience community there. I'm looking forward to future reunions at meetings, email and newsletter updates, and trips to visit friends – both in Atlanta and in other new places. ▲



## PI Personals: Dr. Gary Bassell

### Sharon Swanger, Bassell Lab Specialist

**Sharon: For those that don't know you, can you tell us what you study?**

Gary: In a nutshell, we are interested in the mechanism, regulation and function of mRNA transport and local protein synthesis in neurons.

**S: You have been studying local protein synthesis in neurons since you were a postdoc, was this also the subject of your PhD thesis, and if so, aren't you bored with it by now?**

G: I'm completely bored Sharon, and I am leaving in three months. (Laughs) My thesis project in cell biology addressed basic questions about the interactions of polyribosomes, mRNA and RNA binding proteins with cytoskeletal filaments in fibroblasts. Towards the end of my thesis, there was a couple of exciting papers from other labs showing that mRNAs were localized to dendrites. As a cell biologist, I became interested in the neuron because it was a highly polarized cell and seemed like a great model to look at RNA transport. I did my postdoc with Ken Kosik in the Neurology department at Harvard. It was exhilarating to be around so many neuroscientists for the first time. They weren't studying neurons because it was an attractive model system – they were interested in neurological diseases, functions of the nervous system, and aspects of synaptic plasticity. I realized that I had a whole education ahead of me, non-classically, to eventually become a neuroscientist. Everyone says you shouldn't work on the same question throughout your career - that you should acquire breadth - but my interest to address issues about RNA localization and its function in neurons was a whole new field for me. I never departed from my thesis; I just took on new dimensions. I think its quite rewarding to be in a particular field for the long haul. I want to address broad issues in neuroscience, but also follow through on a question and dig deep into mechanisms.



Dr. Gary Bassell

**S: When did you know you wanted a career in science?**

G: I majored in chemistry in college and thought I would be a high school chemistry teacher, at one point I was interested in forensic science, and then I got involved in a research project in biochemistry and, through this experience, I considered a PhD in biomedical science. Not knowing what I wanted to do, I joined UMass Medical School's biomedical sciences program. I did a rotation in physiology, then neurology, and finally in cell biology with Rob Singer. I was hooked on his research and him as a mentor. I really enjoyed my thesis, although it took much longer than expected.

**S: How long did it take you?**

G: Do I have to answer that?

**S: Yes.**

G: Six and a half years. My wife took only 3 years and 9 months to get her PhD in chemistry, although, her thesis is probably a third the size. So when my kids see our theses on the shelf at home and point out to me that her thesis says 1989, and mine says 1992, I say, "Well, look at how much thicker my thesis is!"

**S: You mentioned your family; can you tell us a bit more about them?**

G: My son Brandon is 14 and my daughter Julia is 11. My son is a very good basketball player and he enjoys architecture. He is the quiet one, my daughter has to be center stage; she plays soccer and enjoys competitive Irish step dancing. She often studies until late at night with me in my office as I work. I think that as a scientist, having a balance between your career and your family is so important. Your family and your children keep you grounded.

**S: So what do you do for fun outside of the lab?**

G: I enjoy skiing with my wife and kids; they go with me every year to Winter Brain Research Conference. My son and

I also go to NBA games. We used to go to watch the Knicks play, but now we get to sit real close at Hawks' games and watch them "play" good teams.

**S: You recently moved here from Albert Einstein College of Medicine in the Bronx. Why the move?**

G: To experience the second greatest accent in the US. (Laughs) Actually, I was truly very happy at Albert Einstein, but you never know if the grass really is greener on the other side of the fence. Colleagues here at Emory informed me of a search going on in cell biology. This turned out to be a wonderful opportunity to move in new directions; it was invigorating. However, as a P.I. who doesn't know how to do experiments anymore, this move would not have been possible if it weren't for the two graduate students and four post-docs who were willing and able to move with me.

**S: What was your most embarrassing moment, professionally, and what did you learn from it?**

G: Towards the end of my postdoc, I had an interview at Rutgers University for an Asst. Professor position. After being up late working on my talk, I nervously got up early and drove to NJ from my home in Connecticut. When I got there I opened the trunk to get my carousel of slides, and they weren't there. I looked in the back seat... not there either. I thought maybe I should call the chairman and say I have been in an accident or that I am sick, but I didn't. I was beside myself sitting in the chairman's office as I told him I didn't have my slides. After a few minutes of contemplation, he says, "Okay...you will give a chalk-talk. This is how we did it in the old days; you have chalk, you draw pictures and you talk about your data." I was mortified at the start of my seminar. People snickered and laughed in the audience, and at that point I knew it was over and suddenly I was no longer nervous. I drew pictures of fibroblasts, RNA and microtubules, and talked



Sharon Swanger

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## Food for Thought: Is Chocolate Food for the Gods?

Alex Poplawsky, Editor

Chocolate has captivated the minds of many cultures throughout history. The civilizations of the Maya and Aztec considered chocolate to be an intoxicating food born from the gods. The Europeans adopted many of chocolate's medicinal remedies and claimed it to be a cure for almost all diseases. Even though many of these historical claims are still unanswered today, modern advances in science have provided us with some clues on the brain altering attributes of chocolate.



Chocolate is native to the New World and was consumed only in drink form by the early cultures of Mesoamerica over a millennium before the Spanish conquest. The main ingredient of chocolate, the cacao bean, was believed by the Maya to be descended from the god Sovereign Plumed Serpent after mortals were created from maize. In their culture, chocolate use was reserved primarily for high status adult males, such as priests, government officials, and military officers, for ritualistic purposes. Women and children were not allowed to drink chocolate because it was believed that they were unfit for its intoxicating effects.

Upon discovering chocolate in the New World, European physicians began to extensively write about the amazing medicinal properties of the Mesoamerican drink. Some even claimed that soldiers stationed in the Americas could be sustained solely on chocolate drinks for months without losing weight. The Spanish eventually brought chocolate to Europe in the mid-16<sup>th</sup> century where, within the next 100 years, it was developed into the same solid food that we know chocolate as today. As time passed, European physicians wrote countless about how chocolate could cure almost any ailment. In the view of the neurosciences, chocolate was claimed to cure cognitive impairments such as insomnia, mental irritation, nervousness,

seizures, low sexual appetite, and mental fatigue. Even the names given to the genus and species of the cacao plant depicted how chocolate was perceived by Europeans in the mid-18<sup>th</sup> century - *Theobroma cacao* (food of the gods).

Today, chocolate may not be regarded as highly as a medicinal remedy as it once was, but some of its supposed mind altering effects still exist in present popular culture.

Cravings for chocolate and its mood uplifting effects are evidence to some that chocolate may be addictive. Many researchers have therefore searched for compounds in chocolate that have psychoactive effects. Several compounds of the stimulant amine family, such as caffeine, were found and are believed to be addictive. However, dark chocolate, which has the highest concentration of these amines, is perceived to be less addictive than its diluted cousin, milk chocolate. Also, two anandamine analogues are found in chocolate and are believed to have an indirect positive effect on cannabinoid receptors, which may produce a similar euphoric feeling as is experienced with cannabis use. This indirect effect does not account for the instantaneous mood change described by chocolate addicts or its short-lived pleasure that only lasts as long as the chocolate is in the mouth.

Another possibility lies in an interesting phenomenon that occurs to heroin addicts when deprived of their drug. They will experience cravings for sweet, which may hint at an overlap between our endogenous opioid system and chocolate craving behavior. It is already established that opioids, such as

P-endorphins, are released to increase the palatability of foods during eating. Further evidence has shown that increased opioid release may stimulate the release of dopamine in the mesolimbic system, which may facilitate addiction. While these pathways may help explain addiction to food consumption in general, there is less evidence for them to be involved in something as specific as chocolate addiction.

The most convincing evidence thus far to explain chocolate addiction investigates the hedonic response associated with the orosensory properties of the sweet treat. When consuming chocolate, there is a unique combination of a sweet and fatty taste, a pleasing aroma, and a texture that melts in your mouth. This combination may make chocolate so palatable that it is irresistible to the body and mind. This explanation provides a simple yet interesting answer. It explains

why the pleasurable sensations are as immediate as putting the chocolate in ones mouth and as short lived as it being fully eaten. However, this does not explain why the Mesoamericans felt chocolate's intoxicating effects when their most common form lacked the same texture and was devoid of sugar.

The effect of chocolate on past cultures is seen with its ritualistic use by early Mesoamericans and its cure-all-ailments medical practice by the Europeans.

Even present popular culture cannot escape believing that chocolate has some mood lifting and addictive quality. If it did escape, chocoholic would not be a word in the dictionary. So next time you fall into the chocolate river while scooping up a handful of that smooth indulgence, just remember it is not your fault that you disobeyed Willy Wonka. It's his own damn fault for making that chocolate so orosensoriffic! ▲



Rare photo displaying intoxicating effects of chocolate on early Mesoamericans.

## Philosopher's Corner: Can the Scientific Mind Beget a Moral Mind?

Meera Modi, Pursuer of Wisdom

Philosophers have long pondered the under girding of moral reasoning. From Aristotle to Kant, they have sought to answer the questions of how to act morally and from where moral quality is derived. Recently, neuroscientists have joined philosophers in the field of deciphering moral thought. The unity of such disparate disciplines has not surprisingly created controversy over the correct approach to answering such weighty questions.

In the effort to determine how one 'ought' to act in order for their actions to be moral, philosophers have come up with two main theories of morality: consequentialism and deontology. Consequentialism holds that the production of the 'best' consequences should be the determining factor in making moral



Meera Modi

decisions. Most familiar is John Stuart Mill's utilitarian brand of consequentialism, where 'right' actions are those that maximize happiness for the greatest number of sentient beings. Deontologists, on the other hand, are not concerned with the consequences of actions but rather the maxims upon which moral decisions are made.

Immanuel Kant, our deontologist exemplar, holds that moral actions are those, which are rationally reasoned from categorical imperatives (basic maxims or truths). Each theory derives moral truth through a different mechanism of reasoning. Morally correct action can therefore vary according to which ideological doctrine is followed. Thus the philoso-



Immanuel Kant

phical basis of 'morality' still remains elusive.

Neuroscientists have joined in the pursuit of moral truth over the last twenty years with the advancements of functional imaging and the analysis of clinical cases, opening the door to the pursuit of neural correlates for morality. The studies have converged on a surprisingly consistent network of brain regions associated with moral emotions, decision-making and reasoning. The prefrontal cortex (PFC), the superior temporal sulcus (STS), the orbital frontal cortex (OFC), along with the pre-limbic and limbic structures have been implicated in mediating moral cognition. Each of these areas have been hypothesized to mediate particular aspects of moral reasoning utilized in both consequentialist and deonto-

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## March is Brain Awareness Month

Kim Maguschak, BAM Coordinator

The Society for Neuroscience has identified March 12-18<sup>th</sup> as Brain Awareness Week (BAW). BAW is a series of events held worldwide to increase public awareness about the brain. The Atlanta Chapter for the Society of Neuroscience (ACSFN) participates in this event by educating K-12 students in the greater Atlanta area. However, because of the increased enthusiasm among local educators, we have extended BAW to include the entire month of March, and thus we celebrate Brain Awareness Month (BAM). Consequently, we need more volunteers to support this exciting event. As eloquently described by Pete Wenner, a neuroscience faculty member and veteran BAM volunteer, participation in this event can be a very rewarding experience:

I gave a brief presentation to about 100 3<sup>rd</sup> graders, including my daughter,



about Brain Awareness Week at Evansdale Elementary. I hadn't realized that the "teaching brains" that I was picking up to take to the presentation were real brains, and even a human brain. I wasn't absolutely certain that this would be appropriate for kids that were so young. I just didn't know how they would respond,

but decided to give it a shot. It turned out that I was able to hold their attention during the presentation, probably because I promised that if they listened I would bring out some real animal brains at the end. When I showed them the mouse brains I got several oohs and ahhhhs. Then the cat brain and

spinal cord – they got very excited and asked me if it was a human brain. Then came the monkey brain and they gasped. When I pulled out the human brain they went nuts, and gave a raucous scream that caused teachers passing in the hall to come in and check out what was going on. The kids asked if it was a whale or an elephant brain. When I told them it was a human brain they absolutely burst out, giving a thunderous shriek, part horror but mainly amazement, and I will never forget it. It was indescribably thrilling for the kids, but also for me. The kids were great; they were fascinated and were asking questions until they had to be stopped so they could get to their



next class. I felt that I had made a connection and must admit that I enjoyed it more than anyone else.

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If you would like to participate in BAM 2007, please contact Kim Maguschak at [kmagusc@emory.edu](mailto:kmagusc@emory.edu). ▲

## The EC Review (cont'd)

*(Continued from page 1)*

to announce that the number of training grant slots has been increased by 50%! Beginning with the academic year of 2007-08, the Neuroscience Program will have 9 training grant slots available per year. This significant accomplishment serves as a marker of the program's diversity in research, dedication to education and training, as well as the success of former students and the recognized potential of our current students. Our thanks go to Yoland Smith, who tirelessly oversaw much of the renewal process.

In addition to the talented students our program has attracted, we have also been adding to our faculty ranks. Robert Gross (Neurosurgery) has recently been appointed a full faculty position, and Becky Kinkead (Psychiatry & Behavioral Sciences) has been appointed as associate faculty. Be sure to keep an eye on [www.emory.edu/NEUROSCIENCE](http://www.emory.edu/NEUROSCIENCE) for upcoming, detailed information on their research interests.

Finally, an important note about our weekly seminar series Frontiers in Neuroscience: this spring, Frontiers will be held in the Yerkes NS Building Seminar

Room, Fridays at noon. We are excited to have six outside guest speakers presenting, in addition to several of our own Neuroscience faculty members. Also, be sure to come and support our student speakers on February 16<sup>th</sup> (Jill Bordelon & Seth Jones) and March 2<sup>nd</sup> (Sara Dodson & Cliff Michaels)!

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If you have any questions, comments, or concerns, please contact your Executive Committee Student representatives, Dan Manvich ([dmanvic@emory.edu](mailto:dmanvic@emory.edu)) and Todd Ahern ([tahern@emory.edu](mailto:tahern@emory.edu)) ▲

## PI Personals: Dr. Gary Bassell (cont'd)

*(Continued from page 3)*

about my data. I had nothing to lose; I knew I wasn't going to get this job. But then people started asking questions, and I realized the audience was engaged.

**S: So, did you get the job?**

G: Three weeks later I was invited back for a formal seminar, and three weeks after that they offered me the job...I turned it down to move to Neuroscience at Einstein. It's a real-life example that even the most miserable of moments in your career may not be as bad as you think; nothing is over until it's over.

**S: I would have called in sick. What about your professional highlights?**

G: Of course I remember my first paper

and my first grant that was funded, but I think my real professional highlights are the accomplishments of the people in my lab. Especially students and postdocs that struggled through the rollercoaster that science can be and showed such incredible perseverance. I remember their big experiments, their thesis defenses, and their graduations.

**S: Do you have any pearls of wisdom for graduate students?**

G: Three pieces of advice:

1. The rewards are sometimes few and far between in this profession, so remain persistent, have perseverance. If you have those qualities they will serve you well, if you don't you need to acquire them.

2. Students tend to feel that grad school is a time to think big, to defy dogma, and in some ways it is. But I think it is as important to temper that energy by developing the skills of critical and detailed thought. This will not only help you design your experiments critically, but also deal with the practical aspects of your career development, i.e. obtain funding.

3. As graduate students you will go through this period of developing confidence to effectively harness and utilize your talents. Remember, you are often a much better scientist than you think you are. ▲

## Philosopher's Corner (cont'd)

*(Continued from page 5)*

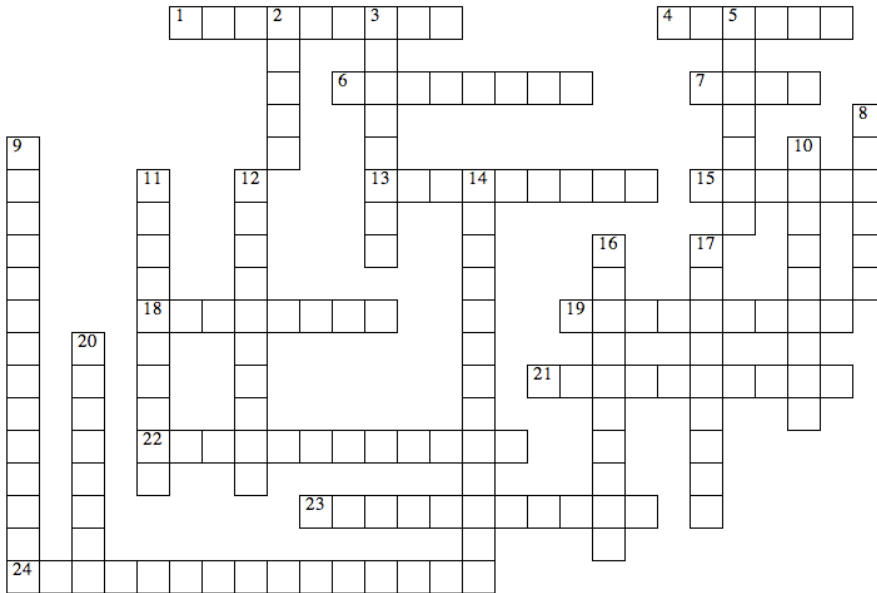
logical frameworks of moral cognition. The executive function properties of the prefrontal cortex are thought to be employed in goal oriented and reward prediction activities enabling the dorso-lateral PFC and the medioventral PFC to mediate utilitarian moral reasoning. Conversely, the storage of context independent concepts and values (like honor and greed) in the anterior temporal lobe along with hierarchical processing of the dorsolateral PFC and the anterior cingulate cortex may provide the neural underpinnings for a more deontological form of moral reasoning.

Neural correlates for moral behav-

iors is tantalizing evidence for the support of a single moral doctrine. It seems to be a plausible argument that the moral philosophies for which there are recognized neural substrates have a stronger basis for being 'correct' moral philosophies than those without apparent biological validity. However, while moral philosophers seek to determine how one 'ought' to act, neuroscientists are limited to the study of what 'is' in moral reasoning. The logic of a neurobiological approach to the study of morality presents the potential pitfall David Hume warned us against of deriving 'ought' from 'is'. To derive what 'ought' to be from what 'is' is to say that

a thing assumes 'rightness' simply because it exists. G.E. Moore spoke more specifically to the problem in describing the 'naturalistic fallacy', in which something is incorrectly described as good or right simply based on it being natural or possessing natural properties. In application to the study of moral theory through scientific means, it suggests that we are incorrect to reason that the mechanisms that exist for moral thought can provide any appraisal on what is the truth of morality. Thus we are forced to question what, if anything, research on the neural basis morality offers the philosophical study of morality. Ideas? ▲

# The Printables...



**ACROSS**

- 1 AT&T just bought out this cortex
- 4 Rectum with a t
- 6 In view of the sphinx
- 7 The little brain rests on this
- 13 Spider membrane
- 15 Only unpaired structure
- 18 A pedestrian's uncle
- 19 A group of birds
- 21 The three jewels of facial expression
- 22 Pituitary stalk
- 23 A big animal that likes to go camping with us
- 24 The brain's nursery

**DOWN**

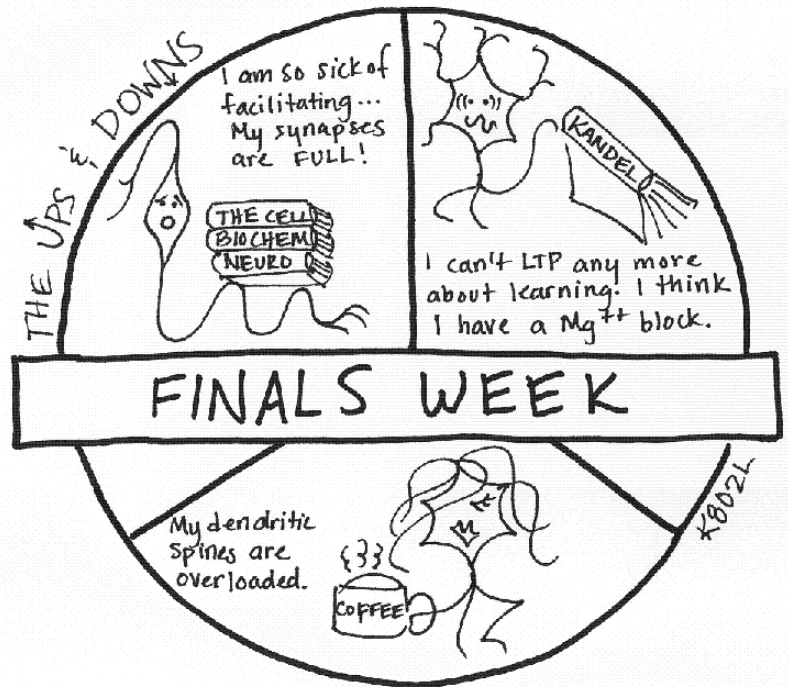
- 2 Bulge
- 3 The crinkled nut of the brain
- 5 This plexus makes 400 ml of CSF a day
- 8 Traffic though his circle is flowing
- 9 A callused body
- 10 This web-like formation
- 11 The pituitary's hypothesis
- 12 The center of the bedroom
- 14 What this puzzle is in
- 16 One of a pair of midbrain mounds
- 17 Reward nucleus
- 20 The back end of the corpus callosum

# Sudoku

**Rules:**

- 1. Insert a number (1-9) into every square
- 2. Each ROW must contain every number 1-9
- 3. Each COLUMN must contain every number 1-9
- 4. Each 3 X 3 group of squares (highlighted with bold lines) must contain every number 1-9

6						8	1
7						3	
		3		4			
					5		
	6				4		7 5
	5		8			4	6
2			6				
1	3				7		
			1				2 8



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Editor: Alex Poplawsky  
Crossword: Vasiliki Michopoulos  
Sudoku: Meriem Gaval  
Extracurriculars: Amy Mahan



...never lacks brains.

## Congratulations!

Without people, our Neuroscience program would be very lonely. Put your hands together for...

### Theses Defenders of 2006

10/12/06 Juan Rong - Advisor Xiao-Jiang Li, M.D., Ph.D.  
8/24/06 Kimberly Dougherty - Shawn Hochman, Ph.D.  
8/10/06 David Machacek - Shawn Hochman, Ph.D.  
6/13/06 Cecily Hamill - Steve Traynelis, Ph.D.  
3/30/06 Jasmeer Chhatwal - Kerry Ressler, M.D., Ph.D.  
3/29/06 Amanda Freeman - David Rye, M.D., Ph.D.  
2/28/06 Maryse Paquet - Randy Hall, Ph.D.  
1/31/06 Masa Kuwajima - Yoland Smith, Ph.D. & Randy Hall, Ph.D.  
1/31/06 Olga Poisik - Yoland Smith, Ph.D.

### New Families

#### Engaged

Charlene Cole	Brittany Copp
Anna Goldshmidt & Adam Orr	Meag Ward & Dr. Andrew Jenkins
Chris Rowland	Rebecca Seaman
Lisa Imboden	

#### Married

Elizabeth (Kirk) Webber	Elizabeth (Degoursac) Ward
Teresa (Emerick) Madsen	Jesse Schank

#### Baby

Lily Iskhakova

## Extracurriculars

### February

2/15-18	8:30 pm	Jake Johannsen (Funny Farm Comedy Club)
2/16	5pm-10pm	Friday Jazz at the High Museum of Art
2/24	4pm-6pm	Oakhurst Wine Tasting (Oakhurst Business District)

### March

3/25	7am	ING Marathon/Half-Marathon
3/22-25	8:30pm	Adam Bloom (Funny Farm Comedy Club)

### April

Thurs.	7pm-9pm	Jazz Nights at Scottish Rite (Scottish Rite Hospital Lawn)
4/21	7:55pm	USL Season Opener: Atlanta Silverbacks vs. Montreal Impact (Silverbacks Park)

### May

Sat.	4pm-6pm	Concerts on the Square (Decatur)
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The Emory Neuroscience Graduate Program leads to the Ph.D. degree and is designed to provide a broad background in modern neuroscience, as well as specialized training in a wide range of specific research areas and techniques. The particular areas of strength in our program are further described on our website. The broad range of research interests coupled with a collaborative atmosphere make the Emory Neuroscience Program well suited to provide a strong, dynamic and exciting environment in which to pursue graduate studies.

For more information please check out:

[www.emory.edu/NEUROSCIENCE](http://www.emory.edu/NEUROSCIENCE)

or

Contact Sonia Hayden at [shayden@emory.edu](mailto:shayden@emory.edu) or (404) 727-3707.

For comments on this newsletter please contact Alex Poplawsky at [apoplaw@emory.edu](mailto:apoplaw@emory.edu).