Monday Meeting: FAU's dean of the College of Science

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Twenty-five years ago, Florida Atlantic University founded its Center for Complex Systems in Brain Science, a program focused essentially on figuring out how the brain works. Neuroscientist Gary Perry joined the program a few years later. Now he is dean of the College of Science.

Though Perry's job is primarily administrative, the brain remains always on his mind.

Just taking a sip from a cup of coffee leads him to ponder the series of connections that took place in the brain to signal the hand to grasp the cup, the arm to lift it to the mouth and the throat to swallow.

Students in the college are studying a wide range of brain activities, such as speech and movement as well as the impact of music on the brain. Some recent research centered on using such imaging as a specialized type of MRI to look at concussions sustained by the FAU football team.

Perry predicts that graduates, through a new partnership with the Max Planck Florida Institute, could fuel a movement toward a more technical job base in Palm Beach County.

Name: Dr. Gary Perry

Title: Professor and dean at the Charles E. Schmidt College of Science

Age: 58

Hometown: London

Education: Bachelor's degree in biochemistry from the University of London, a Ph.D. in neuroscience from the University of Manchester.

What does your job entail?

I am the dean of the College of Science.

My job is to oversee the academic programs in the College of Science. I am involved in developing the programs in the college. I meet with the chairs of the college; they're the academic leaders of the departments. I meet with faculty, with the outside community. On a daily basis, it's lots of meetings.

Do you ever get back into the classroom?
Last summer, I co-taught a course on the mind and the brain. I wanted to get back to my roots.

How did you get to the States, and what's kept you here?

I did a post doctoral fellowship at University of Miami's Miller School of Medicine. From there, I went up to Cornell University medical school as a junior faculty member. I returned after four years to the School of Medicine in Miami as a research faculty member for six years.

Then I came to FAU in 1989 to help start a new center in Complex Systems and Brain Sciences.

What sort of work is done at the Center for Complex Systems and Brain Sciences?

We're looking at how the brain functions at the molecular level all the way to behavior, from the molecule to the mind. We're trying to understand at the level of nerve cells how they work together in complex circuits. The circuits work together as we go up in the complexity of the brain.

Can you give some examples of research being done in the College of Science?

In the early days, a large part of the center group was looking at coordination. How do you coordinate areas of the brain to work together to generate behavior, just moving around, moving your arms, moving limbs.

Of course, this all plays up to even higher brain function, such as language. How are the parts of the brain coordinated to generate speech, to understand speech?

How is the information that's then encoded in those areas of the brain translated into effecting a behavior, such as running or walking or exhibiting a certain type of behavior.

How do we coordinate the visual image in the eye, where the original sensory organ to receive the light is a retina, and the retina is a two-dimensional structure. But the world is really a 3-D world. So how does this 2-D structure convert the perception in our in brain to the 3-D world?

Before we understand how the brain is malfunctioning, some people believe we have to understand how the brain is functioning.

Can you tell me a little bit about the new Program in Integrative Biology and Neuroscience, a partnership with Max Planck Florida Institute to award a Ph.D in integrative biology?

We have folks really looking at the molecular level: cells and circuits and pathways. Groups are working on the mechanism of learning a memory. Other departments are looking at the connection of synapses. It will involve looking at systems: the visual system, the auditory system as it relates to music.

What career might someone with a Ph.D from this program pursue?

They may go on to an academic career. They may go into pharmaceuticals.

First paying job:

I got a taste for science very early.
For my first summer job, at maybe 15, I worked in the lab at a pharmaceuticals company just making up solutions and washing bottles, getting exposed to scientists.

How did you land a job like that so young?

I just turned out to be good at chemistry and biology and physics at school. I would say that is due to my teachers. We all owe a great debt to our teachers.

I was very fortunate that when I was in high school in England it was in the '60s when the (Prime Minister) Harold Wilson government poured millions of pounds into the British education system.

The head of the science department at my school - a physicist - realized he had a golden opportunity to build the science department. We were doing science experiments when I was 15 or 16 that weren't being done at my university.

From your vantage point, what do you think is the current state of science and math education in this country and what is needed in to turn it around?

We see students coming out of the school system ill-prepared to take university courses in science and math. It's time for the nation to make a decision that we need to support education.

You can even argue it's a national security issue. The 8 million who haven't got jobs, they're not going to go back and get the same kind of job as new economy comes in. We have a knowledge-based economy and, therefore, we need students who are competent in mathematics and science - absolutely no question about that.

I think we have to look at the way we teach children all though the K-12 system and into the university. A personal viewpoint: I just don't think we teach science and math that well, and we need to change that. This is not a criticism of our science and math teachers. I think we need better trained teachers.

If you come out of FAU trained as a scientist, you're going to work as a (better-paid) scientist. You're not going to go out and teach.

I would (also) make a case for a national curriculum in science.

What does your knowledge of the brain tell you about how to reach students?

I'm very much aware, as I tell faculty and I tell teachers, that the brain is an active learner. The brain learns best when it is doing things and it can associate things. The worst way to teach is to stand in front of a classroom of 300 kids and lecture to them.

Have you seen a change in the types of jobs available in the local market since the Center for Complex Systems and Brain Sciences opened?

I probably have to say I haven't. I think primarily that's because the graduates who come out with a Ph.D typically work in academics or they may work in pharmaceutical companies.

One graduate took a very interesting job on Madison Avenue and got to work with an ad agency, using the imaging of the brain to look at how people respond to ads.
Do you expect the more recent partnership with Max Planck will have any affect on the local economy and jobs?

I think it's not just Max Planck. I think it's the whole idea of building this cluster in Jupiter. We're doing work with The Scripps Research Institute. I think the goal is ultimately, yes, as the cluster grows there, if there are new discoveries made that could be spun out as companies. They could be spun out in Jupiter. Companies would probably be interested in coming to that area. I think there will be a positive effect on the economy. The thing the politicians want to see is, is it going to happen tomorrow? Unfortunately, science doesn't work that quick. It takes time to put this sort of infrastructure in place.