MISSION
The overarching objective of the Neuroscience Program is to train graduate students to become leaders in neuroscience research and education, as they complete a PhD degree in Neuroscience. Our Program seeks to accomplish two specific goals: (1) Broad training in major subparts of the neuroscience field, including molecular, cellular, developmental, systems, cognitive, neurobiology of disease, and translational; and (2) In-depth training in a specific research area (including the traditions, conceptual framework, driving hypotheses, and techniques in that area). Broad-based training is mandatory, and our students, as mature scientists, are capable of relating their results to wider issues, and developing conceptual and technical fluency in the rapidly evolving field of brain science. Students gain teaching experience through participation as teaching assistants in neuroscience-related courses, and students participate in Program outreach endeavors such as Brain Awareness Week, the Brain Bee, and the Iowa State Fair. Students learn how to identify key scientific problems and questions, how to construct and implement effective experimental designs, and how to analyze data quantitatively. By the end of their PhD training, students can critically appraise the relevant scientific literature and make scientific judgments, they are skillful in communicating research results orally and in writing, and they are able to function as independent, responsible, ethical, and creative neuroscientists. In all of these Program goals, student training is carefully intermeshed with core institutional missions for instruction, research, and outreach.

ADMISSIONS PROCESSES AND CRITERIA
Owing to its relative importance in medicine and science, Neuroscience is a popular field, and the demand for graduate training is high and growing. We utilize several mechanisms for student recruitment: (1) Maintenance and frequent updating of our website that informs potential applicants about the Program. (2) Poster mailings to placement officers and chairpersons of undergraduate science and psychology departments at competitive colleges and universities nationwide. (3) Listing in the Neuroscience Programs handbook of the ANDP/Society for Neuroscience (and on the ANDP website). (4) Listing in Peterson’s Guide to Graduate Programs in the Biological and Agricultural Sciences. (5) Individual efforts by Program faculty, students, staff and administration (mainly on-campus recruiting visits to key regional undergraduate institutions and to diversity institutions).

The Neuroscience Program matriculates students from three pools of applicants: (1) Direct applications to Neuroscience; (2) Applications to the Biosciences Program with neuroscience interests; and (3) the MSTP. The top third or so of the applicant pool is comprised by outstanding students who would be competitive anywhere in the US, and in the past 10 years, we have been able to matriculate our fair share of these students. We have had a steady flow of around 60 to 70 applicants per year.
over the past 10 years, counting all three streams mentioned above. (The Graduate College numbers are smaller, possibly due to not counting all of the relevant Bioscience and MSTP applications.) We normally interview about 10 to 20 students each year, and offer admission to most of those interviewed. We have matriculated between 1 and 6 students per year between 2004 and 2008, according to the Graduate College data (our goal is around 6; year 2008 was an outlier). The caliber of these students is outstanding: for example, for the 04-07 period, the average GPA was 3.65, and the average GRE was V = 599, Q = 706, A/W = 5.1 (all of these indices are higher than those for the Biomedical Sciences overall at UI, and all but the Verbal GRE are higher than the All Programs numbers for UI).

The overall potential of each applicant is assessed with a combination of factors: (1) A strong undergraduate background, which will have prepared the student for graduate study; this includes coursework in science, math, and behavioral sciences, and demonstrated excellence in coursework as evidenced by an undergraduate GPA typically of 3.5 or above; (2) Demonstrated mastery of basic skills assessed with the GRE, as evidenced by scores that are typically above the 80th percentiles for V, Q, and A/W; (3) A strong research background; and (4) Strong letters of recommendation. In addition, we look for maturity, motivation, and intelligence, as evidenced in other materials such as the applicant’s statement of interest.

The Neuroscience Faculty and Program Director are highly involved in recruitment efforts aimed at diversity, and these efforts have paid off, as witnessed by applications, matriculations, and retention. We have 8 diversity students in our Program currently (4 URMs, 2 students with disabilities, and 2 students from disadvantaged backgrounds), all of whom are making excellent progress towards their PhDs.

Students in the Neuroscience Program are fully supported (stipend plus tuition) throughout their training in the Program, contingent on satisfactory progress, for a period that normally covers 5 to 6 years, through the following mechanisms: (1) An NIH Training Grant (used for first- and second-year students), which was renewed in August 2009 and has 6 support slots; (2) Graduate research assistantships and tuition scholarships awarded from funds allocated to the Neuroscience Program by the Graduate College. (3) Graduate research assistantships from research grants (normally from the students’ mentors). (4) Graduate teaching assistantships from other Departments (e.g., Psychology, Biology). (5) Merit-based and extramural sources, including University of Iowa Presidential Fellowships, Dean’s Merit Fellowships, and a variety of nationally competitive NIH, NSF, and other individual awards.

PROGRAM OUTCOMES
Between 2003 and 2008, 29 students earned the PhD degree in Neuroscience, with a median TTD of 5.5 years. Other data from the Graduate College show that between 1996 and 2001, 27 students entered the Program (with the PhD objective), and by May of 2008, 25 of these students had earned a PhD (1 earned an MA; 1 earned the PhD in December of 2008), with a median TTD of 5.3 years. Thus, for this epoch, our completion rate is well upwards of 90%.—in fact, we do not have a single student over this time period who left without any degree.

Our students have had outstanding success in obtaining extramural funding during their training. Over the past 10 years, 24 students successfully competed for extramural awards, including 19 who won prestigious NRSA, NSF, or NSERC awards. Two Neuroscience students won the D.C. Spriestersbach Dissertation Prize over the past several years (2001, Josef Parvizi, PhD, currently an Assistant Professor at Stanford University; 2006, Michael Koenigs, PhD, currently an Assistant Professor at the
University of Wisconsin). Neuroscience has received several Presidential and Dean’s Graduate Fellowships, and we currently have two of each enrolled in the Program.

Our students have extensive publication records. For example, for 16 trainees who finished the Program in recent years, there were a total of 76 articles and chapters ($M = 4.75$ per trainee), and a total of 44 abstracts ($M = 2.81$ per trainee). This work is published in top-tier journals such as *Nature*, *Neuron*, *Nature Neuroscience*, *PNAS*, and *Journal of Neuroscience*. Our students were first authors on many of these papers. Our trainees have produced work that has found its way into the top journals in science and neuroscience.

Our immediate “outcome” goal is to place our graduates in stellar postdoctoral positions. The Graduate College data indicate that for the 12 PhDs graduated between 1998 and 2003, we had 9 in postdoctoral positions, 2 in college/university teaching positions, and 1 unreported/unemployed. This trajectory has continued in recent years, and nearly all of our graduates have obtained postdoctoral positions. College/university teaching positions are also considered “successful” outcomes.

**PROGRAM CHARACTERISTICS**

The Neuroscience PhD Program aims to maintain a cadre of about 40 students-in-training at any given time. We have been successful in meeting this goal since around 2000. This number is commensurate with our resources, faculty, and institutional support.

Our Program is one of the top Neuroscience Programs in the Midwest. We are very competitive at a national level as well, as judged, for example, by the outstanding success of our predoctoral training grant. (The most recent submission of the Training Grant was reviewed very favorably and was renewed, with an increase in the number of slots from 4 to 6, for another 5-year cycle. The grant was approved and funded on the first submission.)

A major strength of our Program is the caliber of students, as evident in winning external funding, TTD, publication records, and securing first-rate postdoctoral positions. Our Faculty are outstanding. Another key strength of our program is quality across many different levels of neuroscience. The Program has outstanding, mature, and stable leadership. The long-running NIH Training Grant is a major distinction. Similar to many entities at our institution, probably the biggest threat to continued success of the Neuroscience Program is financial. The Program runs on what is literally a shoestring budget, and we have highly insufficient resources for many critical Program activities such as recruitment, outreach, and administration. In recent years, the Program Director has used personal monies to maintain some of these activities. This is not a sustainable situation, and the caliber of our students, faculty, and training program will eventually suffer for lack of sufficient resources.

One important opportunity is whether there may be significant advantages to Neuroscience becoming an academic department on campus. There are many obvious lines of rationale for this. Perhaps the most compelling is the status of the field in general: neuroscience has exploded over the past two decades, and every sign points in the direction of continued growth. The aging of the population will continue to fuel this: there is a huge swell in the number of elderly persons, and elderly persons have far and away the majority of neurological disease. So an increase in neurological disease is inevitable, and neuroscience is at ground zero in supporting the science behind neurological treatments and preventions. A survey across our campus will show that undergraduate majors in neuroscience-related fields are popular and growing (e.g., subdisciplines within Biology and Psychology). A Neuroscience department would facilitate the development of a broader and deeper range of coursework, at both undergraduate and graduate levels. This would help solve a chronic, ongoing problem with the
curriculum in the Program, namely, that most of the courses are organized and taught by faculty who are receiving essentially no compensation for this. And it would open the way for more consistent teaching opportunities for the Neuroscience graduate students, which is a significant plus. There has been a large increase in the number of scientists who are being trained in Neuroscience and who are seeking faculty positions, making faculty recruitment a buyer’s market. There is a nationwide trend towards Neuroscience becoming an academic department, and it would behoove our institution to look carefully at the possibility of being in the front wave of this movement.

CONCLUSIONS
The Neuroscience Program has outstanding students and faculty, and we are training our students rapidly and successfully. We have outstanding faculty. We do not have sufficient resources. Neuroscience is a “growth” field where investments now are likely to pay major dividends down the road, for all involved: students, faculty, and the institution.