Template
for
Designing your Program Assessment System (PAS) or Unit Assessment System (UAS)

WSU Neuroscience

Essence: A rigorous undergraduate program that fosters depth of interdisciplinary knowledge of the nervous system, engagement in the scientific method, application to a larger social context, and preparation for successful professional careers.	
Stakeholders: Student majors Student non-majors WSU neuroscience faculty The discipline of neuroscience University and College (upper administration) Parents Professional Schools (including our own) and Graduate Schools Community colleges Industry Community Faculty in other science programs	
Scope - What we are:	***What we are not:***
Current Goals:	***Future Goals:***
Assets/Products:	***Processes/Systems:***
Qualities: Rigorous Interdisciplinary Socially conscious Accomplished graduates Leaders Research based Assessment oriented	
Performance Criteria: <u>Rigorous</u>: a high-performance environment centered on high, clearly articulated expectations that utilizes strong performance criteria, effective and timely assessment, so that students perform through reasoning, writing, research, and teamwork to achieve high-level learning outcomes <u>Interdisciplinary</u>: developing an integrated understanding of how different disciplines interact with neurobiology by building on a core knowledge base in	

the liberal arts, the physical sciences and mathematics in order that physical sciences and mathematics concepts can be creatively applied to solve problems in biology and that similar concepts are recognized when they are engaged in different contexts

Socially conscious: awareness by students and faculty that neuroscience impacts society and are committed to helping society understand and value science, enriching the community, fostering personal growth, and advancing the interests of science

Accomplished graduates: graduates of the program will have highly competitive resumes that allow them to compete successfully for entry into the graduate or professional school, or employment, of their choice.

Leaders:

Research based:

Assessment oriented:

Criteria	***Measure***	***Weight***	***Means***	***Instrument***	***Current***	***Future***	***Accountability***
Rigor	Expectations (standards)						
Rigor	Performance skills						
Rigor	Learning environment						
Interdisciplinary	Transference among contexts						
Interdisciplinary	Synthesis						
Interdisciplinary	Communication across disciplines						
Socially conscious	Engagement in community						
Socially conscious	Commitment						
Socially conscious	Personal growth						
Accomplished graduates	Strength of resume						
Accomplished graduates	Placement of choice						
Leaders							
Leaders							

Research based							
Research based							
Assessment oriented							
Assessment oriented							

STEP ONE (Esssence):

A **rigorous**, **selective** program to foster **depth of integrative and multi-disciplinary knowledge** of the **nervous system**; engagement in the **scientific method;** application to a **larger social context**; and preparation for **professional careers**.

STEP TWO (stakeholders)

- Student majors
  - Meet career goals
  - Intellectual exploration and growth
  - Hands on experience with research
- Student non-majors
  - Interesting area to learn more about
  - Satisfy elective for other program
  - Secondary career goals (Neuroscience as a minor)
- WSU neuroscience faculty
  - Feeder to graduate program
  - Build community
  - Satisfaction of mentoring researchers and stimulating students to learn
  - Perpetuating neuroscience as an important discipline
  - Build resource base
  - Status and satisfaction of association with excellent program
- The discipline of neuroscience
  - Perpetuating and strengthening neuroscience as an important discipline
  - Maintaining standards of the discipline
- University and College (upper administration)
  - Destination program for WSU (rare program of study in the NW)
  - Meet strategic goal to offer best undergraduate experience (face to face) at a research institution
  - Produce successful alumni
  - Enhance stature of college
  - Engage professional college more in the undergraduate aspects of the university
- Parents
  - Rigorous program for their children
  - Set their children on successful career pathway
- Professional Schools (including our own) and Graduate Schools
  - High quality students; able to succeed in their programs
  - Well-rounded students; able to succeed in their programs
- Community colleges
  - feeder to successful destination program
  - feedback (and help?) to improve their own programs

- Industry
    - Well educated employees
    - Well rounded employees
- Community
    - Practical knowledge about neuroscience
    - Increased awareness of societal issues related to neuroscience (disease/disorders)
    - Role models for K-12 students; to develop an interest in science
    - Knowledge about importance of scientific processes and research
- Faculty in other science programs
    - Interdisciplinary growth
    - Elective course offerings for their majors
    - Research colleagues

STEP THREE (scope)

What we are	What we are not
Selective	A program for the masses
Integrative/Synthesis	Solely Reductionist
Biomedically oriented	Not service (course) oriented
Undergraduate research is required	
Reach out to community	
Upper division oriented	
Multi-disciplinary	
Career oriented	Job oriented
Basic science oriented	Applied science is less important
Focused on a single area of biological science	

STEP Four (goals)

Current

1. **High proportion of graduates are well prepared to succeed in post-graduate education to enter professional careers**
2. **Students engage in hypothesis-based research**
3. Program learning goals aligned with university learning objectives
4. **Foster student integration of information from across disciplines**
5. **Foster effective oral and written communication skills**
6. Outreach to community
7. Recruit high ability students

8. **Enhance departmental and college stature by striving to be a "poster child" for "World Class. Face to Face."**
9. **Increase the importance of our professional college to the larger life of the undergraduate university**
10. Graduate ~20 students per year
11. Graduate students in four years
12. Develop strong problem solvers

Future

1. **Bring national stature to WSU in this discipline**
2. **Increase experiential and core course capacity and broaden elective course offerings**
3. (but) **do not exceed a number of certified majors that would dilute the other program goals** (in relation to resources available to offer the preferred undergraduate experience)
4. **Increase resources (operating budget, graduate stipends, faculty and staff positions) needed to achieve other goals**
5. **Foster higher level of quantitative and reasoning ability of students**
6. Increase active learning opportunities in the classroom
7. **Produce the learning outcomes that have been defined (and define them) for each course**
8. Satisfied and successful alumni who build our donor base for future development

STEP Five (products and assets)

Current

1. Internationally recognized research-oriented neuroscience faculty
2. Reputation for placement of graduates in professional or graduate school of choice
3. Efficient and well-run administrative support
4. Effective academic and career advising and mentoring
5. One of only two programs in the region (Alaska, Montana, Idaho, Wyoming, Utah, Nevada, Oregon, Washington)

Future

1. Externally funded programs for training and outreach
2. Core and elective course offerings that are consciously interdisciplinary

STEP Six (key processes)

1. hands-on research activity
   placement in a research lab with a suitable mentor; formulation of a "contract" to outline the expected experience and outcome; engage students in hypothesis-driven research; student/mentor (sometimes) seek monetary support for selected experiences; present culminating project (poster); (sometimes) co-author paper or abstract in the scientific literature

2. classroom experience
   develop learning goals for course in relation to its role in the program; mix of lecture (mostly) and active (need more) learning in the classroom; writing assignments in all (ideally) courses; quantitative exercises in select (current; ideally all?) courses; laboratory experience in selected courses (to complement individual hands-on experiences); mid-term and final assessment of student learning and course goals and processes; coordinate assessment tool(s) across all courses and expose the assessment tool(s) early in the curriculum

3. advising/mentoring
   identify student area of interests to team with appropriate career advising; place students in courses appropriate for stage and timely progress through the curriculum; advocate for students as necessary to facilitate progress toward degree;

4. community outreach
   Kids Judge! Neuroscience program; cooperative programs with Palouse Discovery Science Center; students as "ambassadors" to visit high schools to teach other kids, similar to their age, about some aspect of neuroscience – in particular in relation to a societal issue; neuroscience club programs in K-12 classrooms;

5. planning for the future
   benchmarking; strategic goal setting; program retreats; scoping national trend; implementing meaningful assessment of student, faculty, and programs to improve program quality and position it for greater success;

STEP Seven (performance criteria)

Current qualities

1. **rigorous**
2. student-oriented; nurturing and individually attentive
3. **research focus**
4. world class faculty
5. **interdisciplinary**
6. **highly sought, successful graduates**
7. selective
8. interactive
9. **concern for community**
10. collaborative environment

Future qualities

1. **assessment oriented**
2. world class alumni
3. **cohesive curriculum**
4. primary literature literacy
5. quantitative
6. richer collaborative environment

[QUESTION: where do things like "communication", "reasoning", "quantitative", "writing" fit into these qualities?]

Criterion Statements

a) Interdisciplinary

- Core knowledge base in physical sciences and mathematics
- Opportunity to apply physical science and mathematics in a biological context
- Ability to recognize similar concepts in different contexts (analogous thinking)
- Broad ranging elective opportunities
- Integrated understanding of how disciplines interact

What's missing in the above?

- Biological knowledge base
- Psychology as electives (all liberal arts for that matter)

Narrative statement

Interdisciplinary: building on a knowledge base in biology, the liberal arts, the physical sciences and mathematics to develop an integrated understanding of how different disciplines interact such that physical sciences and mathematics concepts

can be applied to solve problems in biology and to recognize similar concepts when they are engaged in different contexts

Alternative:

Interdisciplinary: developing an integrated understanding of how different disciplines interact with biology by building on a core knowledge base in the liberal arts, the physical sciences and mathematics in order that physical sciences and mathematics concepts can be creatively applied to solve problems in biology and that similar concepts are recognized when they are engaged in different contexts

b) **Rigorous** (shamelessly stolen, for the most part)
- High expectations
- Strong writing performance
- Improvement oriented
- Working at higher levels of learning, with breadth and richness around core concepts
- Constantly in a high performance state

What's missing in the above?

- Clear expectations
- Teamwork
- Writing
- Research
- Strong reasoning skills

Narrative statement

Rigorous: a high-performance environment centered on high, clearly articulated expectations that utilizes strong performance criteria, effective and timely assessment, so that students perform through reasoning, writing, research, and teamwork to achieve high-level learning outcomes

c) **Social consciousness (formerly concern for community)**
- Communicating the importance and value of science
- Communicating the importance and value of neuroscience
- Motivating young people to study science
- Provide learning opportunity for neuroscience students as they prepare to communicate neuroscience to others
- Inculcate service- and community-mindedness in students and faculty
- Enhance the K-12 classroom experience and provide teacher education
- Attract resources to the program
- Recruit neuroscience students

Higher level groupings of the above:

- Impact of the university on society
- Engaging society to enrich the university experience (these two are a "two-way street"
- Enhance K-12
- Enhance university/program resources

Narrative statement

Social consciousness: awareness by students and faculty that neuroscience impacts society and thus they accept an obligation to engage society to understand and value science, enrich the community, foster personal growth, and advance the interests of science

d) **Accomplished graduates**

- Competitive for entry into graduate and professional school
- Realize their goal of entry into school of choice
- Highly competitive resume demonstrating breadth and depth of academic and non-academic achievement
    - Grades and course rigor
    - Leadership
    - Community service

Narrative statement

Accomplished graduates: graduates of the program will have highly competitive resumes that allow them to compete successfully for entry into the graduate or professional school, or employment, of their choice.

Interdisciplinary: developing an integrated understanding of how different disciplines interact with neurobiology by building on a core knowledge base in the liberal arts, the physical sciences and mathematics in order that physical sciences and mathematics concepts can be creatively applied to solve problems in biology and that similar concepts are recognized when they are engaged in different contexts

Rigorous: a high-performance environment centered on high, clearly articulated expectations that utilizes strong performance criteria, effective and timely assessment, so that students perform through reasoning, writing, research, and teamwork to achieve high-level learning outcomes

Social consciousness: awareness by students and faculty that neuroscience impacts society and thus they accept an obligation to engage society to understand and value science, enrich the community, foster personal growth, and advance the interests of science