APPLICATION FOR NEW COURSE

1. Submitted by College of: Allied Health Professions_ Date: 9/4/01________

   Department/Division offering course: Rehabilitation Sciences/ Rehabilitation Sciences Doctoral Program

2. Proposed designation and Bulletin description of this course:

   (a) ___RHB 710 ______________ (b) Neuroplasticity in Rehabilitation________________
       Prefix and Number __________________________________________________________________
       Title __________________________________________________________________________

   (c) __2 hr/wk__________________ (d) ___0____________________
       Lecture/Discussion hours per week Laboratory hours per week

   (e) ___0______________________ (f) ___2cr_________________
       Studio hours per week Credits

   (g) Course description:
       This course will examine the neurological principles utilized by each of the rehabilitation disciplines (PT, OT, SLP) in the context of current research data and determine whether these principles hold up to scientific examination. The format of this course will utilize formal lectures on current theories of neuroplasticity and class discussion on current literature in each of these areas. Case studies will be utilized to apply current theories to practical application within each of the listed disciplines.

   (h) Prerequisites (if any): Course in Neuroanatomy, Admission to the Rehabilitation Sciences Doctoral Program or by consent of the instructor

   (i) May be repeated to a maximum of _0 credits_________ (if applicable)

3. To be cross-listed as: ___N/A________ N/A____________________
   Prefix and Number Signature, Chair, cross-listing department

4. Effective Date: __Fall 2002__________________ (semester and year)

5. Course to be offered (a) ___X________ (b) _____________ (c) _____________
   Fall Spring Summer

   • Note: If the title is longer than 24 characters (including spaces), write a sensible title (not exceeding 24 characters) for use on transcripts:
6. Will the course be offered each year? ___________ , less frequently ___X_____
   (Explain if not annually):

   This course will be offered every other year. It will be alternated with additional
   Doctoral level courses.

7. Why is this course needed: This course is being submitted as part of the
   Rehabilitation Sciences Ph.D. program in the College of Allied Health Professions.
   The curriculum of this program is designed to prepare doctorally-trained individuals
   for careers in higher education. The RHB 710 course is designed to meet the
   academic and research missions of the degree

8. (a) By whom will the course be taught? _Rehab Sciences Graduate Faculty____

   (b) Are facilities for teaching the course now available? _____ No ___X___ Yes

   If not, what plans have been made for providing them? ___________________
   ________________________________________________________________________

9. What enrollment may be reasonably anticipated? ____6-12___________

10. Will this course serve students in the Department primarily? _____ No ___X___ Yes

    Will it be of service to a significant number of students outside the Department?
    ___X___ No _____ Yes If so, explain __This course will be opened to graduate
    students in the Center for Aging, College of Nursing, and additional departments as
    requested_____________________________________________________________

    Will the course serve as a University Studies Program course? _X___ No _____ Yes

    If yes, under what Area? ________________________________________________

11. Check the category most applicable to this course:

    ____ traditional; offered in corresponding departments elsewhere;

    ____ relatively new, now being widely established

    ___X__ not yet to be found in many (or any) other universities

12. Is this course part of a proposed new program? __X___ No _____ Yes  If yes,
    which?

    __The Rehabilitation Sciences Ph.D. program is in its second year and this new course
    has been designed to meet the needs of the graduate students ____________
13. Will adding this course change the degree requirements in one or more programs? [ ]

   ___X___ No     _____ Yes   If yes, explain the change(s) __________________________
   ________________________________
   ________________________________

14. Attach a list of the major teaching objectives of the proposed course and outline
   and/or reference list to be used.

15. If the course is a 100-200 level course, please submit evidence (e.g., correspondence)
   that the Community College System has been consulted.   N/A

16. Within the Department, who should be contacted for further information about the
   proposed course?

   Name _Patrick H. Kitzman, Ph.D., PT_ Phone Extension: _323-1100 x289_

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• Note: Approval of this course will constitute approval of the program change unless other program
  modifications are proposed.
Course Coordinators:
Patrick H. Kitzman Ph.D., PT
Office: Room 210A CAHP Building
121 Washington Ave. Lexington
859-323-1100 x 289; phkitz1@pop.uky.edu

Heather Wright Ph.D.,
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1030 S Broadway, Lexington
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Susan Queen Ph.D., PT
Office: Room 213 CAHP Building
121 Washington Ave, Lexington
859-323-1100 x 251; squeen@pop.uky.edu

Description: Neuroplasticity “by virtue of which certain permanent functional transformations arise in particular systems of neurons as a result of appropriate stimuli or their combination, we shall call plasticity and the corresponding changes plastic changes.” (Jerzy Konorski, 1948). A great deal of the current treatment utilized by each of the rehabilitation disciplines is built on the theory that the central nervous system has the ability to change/reorganize in response to therapeutic intervention.

Purpose:
The purpose of this course is to examine the process of neural plasticity within three contexts.

1) CNS reorganization as seen normally during development and the aging process
2) CNS reorganization as a reaction to injury
3) CNS reorganization in response to rehabilitation interventions.

This course will examine the neurological principles utilized by each of the rehabilitation disciplines in the context of current research data and determine whether these principles hold up to scientific examination. The format of this course will utilize formal lectures on current theories of neuroplasticity and class discussion on current literature in each of these areas. Case studies will be utilized to apply current theories to practical application within each of the rehabilitation disciplines.

Course Objectives:
1) Discuss the current theories of neuroplasticity as they apply to “normal” development and the aging process.
2) Discuss the current theories of neuroplasticity following injury to the central nervous system.
3) Discuss the current research on the efficacy of rehabilitation methodology/practice (in each student’s specific field) on neuroplasticity and functional outcomes.
4) Discuss areas of weakness in the current research as it applies to the efficacy of rehabilitation methodology and practice relating to neuroplasticity and functional outcomes.

Course Expectations:

1. Attendance is expected at class.
2. Students are expected to complete reading assignments and participate in class discussions.
3. All assignments must be completed to receive a grade in the course.
4. Collaborative teamwork with classmates is expected.
5. Discuss with the professor any problems in meeting class deadlines or attendance
6. Specific course expectations will be provided in writing and students will be informed of their progress.

Course Assignments:

1) Case Studies: students will read case studies prior to class and will participate in the discussion of the studies.
2) Midterm Exam: essay format
3) Research a topic on the efficacy of rehabilitation on neuroplasticity: students will research a selected topic on the efficacy of rehabilitation methodology/practice (within their professional field) on neuroplasticity. This research will be submitted to the instructors in manuscript form (minimum of 10 pgs. not including references).
4) Class presentation: students will present a 30 min talk on the topic presented in their manuscript.

Grading:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Studies</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm</td>
<td>25%</td>
</tr>
<tr>
<td>Paper and Presentation</td>
<td>40%</td>
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<tr>
<td>Class participation</td>
<td>10%</td>
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</tbody>
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Grading Scale: A= 90-100, B = 80-89, C = 70-79, E = less than 70

Textbook:

Assigned readings:


**Excused absences:** Acceptable reasons for excused absences are listed in Student Rights and Responsibilities, Section 5.2.4.2. Briefly, these include illness, death of someone in the student’s immediate family, University sponsored trips, major religious holidays, and other circumstances the instructor finds reasonable.

**Inclement weather:** In case of inclement weather or emergencies, class will be held unless the University administration cancels classes. Students should use their judgment about weather to come to class.

**Cheating and plagiarism:** Descriptions of what constitutes cheating and plagiarism are found in Students Rights and Responsibilities, Sections 6.3.1 and 6.3.2. Be aware that the minimum punishment for either of these offenses is an “E” in the course.

**Class Lecture Topics:**

1) Review of neuroanatomy involved with motor function

2) Review of neuroanatomy involved with language and cognition

3) Neuroplasticity during development: Motor

4) Neuroplasticity during development: Language and cognition

5) Neuroplasticity across the lifespan: aging
6) Neuroplasticity and motor learning
7) Neuroplasticity following stroke/TBI
8) Neuroplasticity following SCI/ CP
9) Neuroplasticity secondary to neurodegeneration/ toxins
10) MIDTERM
11) Class presentations (will cover several class periods)