## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission and Vision Statement</td>
<td>3</td>
</tr>
<tr>
<td>Graduate School and Program in Rehabilitation Science Commitment to Diversity</td>
<td>3</td>
</tr>
<tr>
<td>Program Contact Information</td>
<td>4</td>
</tr>
<tr>
<td>University Contact Information</td>
<td>4</td>
</tr>
<tr>
<td>General Information</td>
<td>5</td>
</tr>
<tr>
<td>Active Status, Annual Student Review, Computer Access, Copier Use, Email, Emergency Situations, Financial Aid, GRAD 999, HIPAA Compliance, Immunization Records, Lab and Office Space, Orientation, Phone Policy, Professional Services Policy, Research Assistants, Responsible Conduct in Research (RCR) Training, SETTA Test for International Teaching Assistants, Student Conflict Resolution Center, Supplies, Teaching Assistants, Teaching Assistants and Teaching Practicum, Transfer of Credits, Tuition and Fees.</td>
<td></td>
</tr>
<tr>
<td>Registration Requirements, Grade Requirements, Time Limits and Termination</td>
<td>10</td>
</tr>
<tr>
<td>Registration Requirements and Procedures, Minimum Grade Requirements, Incomplete Grades, Time Limits for Completing Degree, Termination of Graduate Status.</td>
<td></td>
</tr>
<tr>
<td>PhD Requirements</td>
<td>12</td>
</tr>
<tr>
<td>Master’s Degree Requirements</td>
<td>16</td>
</tr>
<tr>
<td>Faculty</td>
<td>19</td>
</tr>
<tr>
<td>Course Descriptions</td>
<td>22</td>
</tr>
<tr>
<td>Mutual Responsibilities in Graduate Education</td>
<td>28</td>
</tr>
<tr>
<td>Appendices</td>
<td>31</td>
</tr>
</tbody>
</table>

**IMPORTANT NOTE:** In addition to the content found in this handbook, all Rehabilitation Science students are responsible for the material contained in the University’s Student Code of Conduct. Students employed are also responsible for the University’s Code of Conduct. Both can be found at:


In addition, students should review the information found on the Office for Student Conduct and Academic Integrity’s website, as well as the Graduate School’s Policies and Governance:

- [www.oscai.umn.edu](http://www.oscai.umn.edu)
- [http://www.grad.umn.edu/about/policiesgovernance/](http://www.grad.umn.edu/about/policiesgovernance/)
University of Minnesota
Rehabilitation Science Program
Mission and Vision Statement

The faculty of the Program in Rehabilitation Science at the University of Minnesota is driven to discover and disseminate rehabilitation breakthroughs to improve the quality of life and physical well being of persons in the state of Minnesota, the nation, and throughout the world. Our mission further encompasses the cultivation of premier scientists and future academicians to lead the transformation of the science and the practice of rehabilitation.

Graduate School and Rehabilitation Science Program
Commitment to Diversity

The Graduate School and Rehabilitation Science Program embraces the University of Minnesota’s position that promoting and supporting diversity among the student body is central to the academic mission of the University. A diverse student body enriches graduate education by providing a multiplicity of views and perspectives that enhance research, teaching, and the development of new knowledge. A diverse mix of students promotes respect for, and opportunities to learn from, others with the broad range of backgrounds and experiences that constitute modern society. Higher education trains the next generation of leaders of academia and society in general, and such opportunities for leadership should be accessible to all members of society. The Graduate School and Rehabilitation Science Program is therefore committed to providing equal access to educational opportunities through recruitment, admission, and support programs that promote diversity, foster successful academic experiences, and cultivate the leaders of the next generation. All persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.
Program Contact Information -

Dawn M. Lowe, PhD                                   Paula M. Ludewig, PhD, PT
Co - Director of Graduate Studies (DGS)              Co-Director of Graduate Studies (DGS)
Rehabilitation Science Program                       Rehabilitation Science Program
Phone: (612) 626-3344                                 Phone: (612) 626-0420
Fax: (612) 625-4274                                  Fax: (612) 625-4274
Email: lowex017@umn.edu                             Email: ludew001@umn.edu

or

Rich Adamczak
DGS – Assistant
Project Specialist
Phone: (612) 625-3966
Fax: (612) 625-4274
Email: adamc002@umn.edu

Mail Address:

Rehabilitation Science Program
MMC 388
420 Delaware St SE
Minneapolis, MN  55455

Important University Contact Information -

(Both the MyU and Onestop websites are central sites for all student needs)

MyU -                                               www.myu.umn.edu
Onestop -                                           www.onestop.umn.edu
University of Minnesota Homepage -                  www.umn.edu
University of Minnesota Graduate School -           www.grad.umn.edu
Graduate Assistant Employment -                      www.umn.edu/ohr/gae
International Scholar and Student Services Office - www.isss.umn.edu
Boynton Health Services -                           www.bhs.umn.edu
Student Computing Services -                         www.oit.umn.edu/students/index.htm
Rehabilitation Science Program -                    www.rehabscience.umn.edu
Occupational Therapy Program -                      http://cahp.umn.edu/ot
Physical Therapy Program -                          www.physther.umn.edu
Active Status – Maintaining active status is critical and is required in order to participate in the University community as a graduate student. A student’s active status is dependent on enrollment. As long as a student registers for a minimum of 1 graduate credit each Fall and Spring semester, the student will be considered an active graduate student. The number of credits a student is required to register for may vary dependent on the student’s VISA status, employment status, and/or financial aid needs. Students not registered every fall and spring term are considered to have withdrawn and their student record will be deactivated. Those who wish to resume graduate work must request readmission (and if readmitted, must register) to reactivate their status. For those students who do not have any classes to register for, but need to maintain active status, please contact the DGS – Assistant (page 4). Please also see GRAD 999 (page 6). For more information visit: http://onestop.umn.edu/special_for/MaintainingActiveStatus.html.

Annual Student Review - Rehabilitation Science students will be reviewed annually, typically in the spring of each year. The review will cover academic performance and research progress. The form of the review will be both written and verbal. The review will require the completion of two forms: (1) program Annual Student Review form (Appendix A) and (2) Medical School Individual Development Plan (Appendix B). The DGS-Assistant will initiate the start of the review with the advisor/student. The advisor and student will complete the review. If requested by the student or advisor, DGS-Assistant and/or DGS may take part in the review. In the event the DGS is the student advisor, a second faculty member may be requested by the student to take part in the review process. All Rehabilitation Science students will have an opportunity to formally respond to their annual review. Completed forms will be placed in the student’s file held in the office of the DGS-Assistant. Students can request written access to their file at any time. Written access should be in the form of an email and should be addressed to the DGS-Assistant, DGS, and student advisor.

Computer Access - Computers are available for student use in student labs and offices in Children’s Rehab Center. There are also computer labs in Coffman Memorial Union and University libraries.

Copier Use – The copier is located in the mailroom on 2nd floor of Children’s Rehab Center. The copier is designated for faculty and staff use only. Students may use the copier for work related to the student’s research assistantship and/or teaching assistantship. Students may not use the 2nd floor copier for the student’s general school work or for non-University related work. Copiers for student use are located in Coffman Memorial Union and/or University libraries.
E-mail - All registered students will have an official University e-mail address. It will be the student’s responsibility to activate his/her e-mail address. Instructions for activating a student account can be found at: https://www.umn.edu/initiate. All Rehabilitation Science students will receive University-related correspondence via the student’s University of Minnesota email account. Non-University of Minnesota email accounts will not be used to transmit University-related information.

Emergency Situations – If you face an emergency situation of any kind, do not hesitate to contact your local fire department, police department, or medical facility. The best way to do so is to find the nearest phone and dial 911. 911 is the dedicated emergency phone number throughout the United States.

Financial Aid - A limited number of graduate assistantships are available in the form of teaching and/or research assistantships. Teaching assistantships are competitive and arranged through either the University’s Occupational Therapy Program or Physical Therapy Program. Research assistantships are arranged through the student’s faculty advisor. Students should contact the DGS-Assistant (page 4), and/or the student’s faculty advisor, for further information related to fellow and graduate assistant opportunities. For general financial aid information, visit:

http://onestop.umn.edu/finances/financial_aid/index.html

GRAD 999 – GRAD 999 is a non-credit, non-cost course that students register for to stay active within the graduate school. A student needs advisor approval—in writing—in order to register for GRAD 999. Permission should come from the advisor via email and both the DGS and DGS-Assistant should be copied on the email. Written permission should be granted in advance of the first day of the semester. If a student registers for GRAD 999 without advisor permission, a hold will be placed on the student’s record for the following semester. The student will then need to consult with his/her advisor on a plan of study in order to release the hold. The consultation to release the hold needs to occur before the first day of the semester. Further information on GRAD 999 can be found at:

http://onestop.umn.edu/special_for/MaintainingActiveStatus.html

Health Insurance Portability & Accountability Act (HIPAA) Compliance – The Rehabilitation Science Program is a part of the University’s Academic Health Center (AHC). AHC requires all students and faculty to be compliant with the federal Health Insurance Portability and Accountability Act (HIPAA). The University of Minnesota’s Privacy and Data Security Training program is the educational component developed at the University to comply with HIPAA (the Health Insurance Portability & Accountability Act of 1996) regulations. All AHC students will complete HIPAA training. Instructions for completing HIPAA training will be sent directly to the student’s University email account and/or the student’s my page once the student registers for classes for the first time. It is the student’s responsibility for completing the appropriate training and should complete all training prior to the end of the student’s first year of
study. Any student who does not complete the training in the first year will be subject to having a hold placed on the student’s record. For instruction on training, please visit:

http://www.privacysecurity.umn.edu/training/home.html

**Immunization Records** – All students are required to have a health clearance as a condition of enrollment. This information must be completed to register for classes. When you are notified of acceptance to the Program, the Graduate School will inform you of the University’s immunization policy and direct you to Boynton Health Services for immunization procedures. For more information regarding this process and compliance, please visit the following:

http://www.bhs.umn.edu/immunization-requirements.htm

**Lab and Office Space** – Laboratory and office space will be arranged and assigned based on availability and need. All Rehabilitation Science will have dedicated space. Please contact your advisor regarding lab and office space.

**Orientation** – Once you are admitted, the DGS–Assistant will contact you to arrange a program orientation. During this orientation you will be provided information necessary for getting started as a graduate student. The University also offers optional new student orientation (http://grad2.umn.edu/orientation/index.html). All international students will complete international student orientation. Please contact the International Scholar and Student Services (ISSS) to arrange for this orientation. Contact information for ISSS can be found online at: www.isss.umn.edu.

**Phone Policy** – Students may not place phone calls which require expense from any Rehabilitation Science Program phone unless given permission by Rehabilitation Science faculty and/or staff. In the case of a family emergency, students may place calls from a Program phone at the student’s discretion. If a student needs to make a call requiring expense which is related to the student’s or faculty’s research, the student should first consult with the faculty advisor in charge of the research.

**Professional Services Policy** – Rehabilitation Science students are expected to adhere to state laws when providing professional rehabilitation services, regardless of whether these services are for salary, fee, or free; and regardless of recipient’s status as student in affiliated programs. If a Rehabilitation Science student is appropriately credentialed and licensed in the state and chooses to offer professional rehabilitation services, these services must be within the practice act guidelines of the profession and may not be performed on University premises or with University equipment/supplies. All concerned parties (i.e., student service provider and service recipient) must be aware that such service is not covered by the University’s liability. This policy does not apply to assessments or interventions when performed as part of Rehabilitation Science students’ coursework, research projects, or in the role of teaching assistant.

**Research Assistants** – Research assistantships are arranged between the student and the student’s faculty advisor. Research assistantships are dependent on available funds. For general
information related to research assistantships, please contact the DGS–Assistant and/or visit the Graduate Assistant Employment website at:  http://www1.umn.edu/ohr/gae/.

**Responsible Conduct in Research (RCR) Training** - The University requires Responsible Conduct in Research (RCR) training. Oversight is facilitated by the University’s Research Education and Oversight (REO) office. Courses that meet, in part, the RCR requirement for training can include, but are not limited to: part of an existing course or courses; a course dedicated to research/professional ethics; faculty mentoring; and/or a non-credit seminar, workshop, or RCR core curriculum, specifically RCR Core – Biomedical Sciences. Student should work with advisor to identify a mechanism for meeting this requirement. The Rehabilitation Science Program encourages students to complete RCR Core – Biomedical Sciences. To access training, visit:

http://www.research.umn.edu/reo/education/index.html

**Spoken English Test for Teaching Assistants (SETTA) for Non-Native English Speaking Teaching Assistants** – University of Minnesota policy requires that all prospective teaching assistants who are non-native English speakers show proficiency in English before serving as a teaching assistant. The policy can be found at:

http://policy.umn.edu/Policies/hr/Performance/LANGUAGE.html

If a non-native English speaking student does not show proficiency prior to arrival, the student will be required to take the SETTA test upon arrival and show the requisite proficiency before beginning as a teaching assistant. The University offers the SETTA at no cost to students who have been admitted to the Graduate School. Results of the SETTA help determine the student’s eligibility for a TA assignment. It is possible for students to be exempted from this requirement if they are from a country where English is a primary language. For information regarding the SETTA exam, please visit:

http://cei.umn.edu/courses-programs/international-teaching-assistant-program/testing-eligibility

**Student Conflict Resolution Center (SCRC) and Student Grievance** – SCRC works with students to resolve university-based problems and concerns. The services are free and confidential. SCRC will assist you with any University issue. An ombudsman provides confidential, neutral and informal options. An advocate is available to assist students in formal grievance or disciplinary proceedings. Ombudsman standards include:

**CONFIDENTIALITY**
SCRC is a confidential resource. We do not contact anyone without your knowledge or permission. The only exception to this standard is if we thought someone was in danger based on information we received.

**IMPARTIALITY**
The Ombudsman is not a representative of any party. We are here to help facilitate an agreement by the parties.

INDEPENDENCE
SCRC maintains, by charter, its independence from the University. The Student Conflict Resolution Center is funded by student services fees.

INFORMAL
The Ombudsman does not participate in any formal proceeding in any way. The Ombudsman will not participate in grievance hearings, student discipline appeals, or litigation. It is important to note that the Student Conflict Resolution Center and Office of the Ombudsman is not an office of notice within the University community.

For information, please visit: www.sos.umn.edu/index.html. SCRC is located in room 254 Appleby Hall on the east bank of the University’s Minneapolis campus. Phone number is 612-624-7272. Email is sos@umn.edu.

Supplies – Supplies owned by the Rehabilitation Program, Occupational Therapy Program, and Physical Therapy Program should not be used by students for personal use or for use related to the student’s role as student. Supplies can be used if the work is related to the student’s role as research or teaching assistant.

Teaching Assistants – Presently, limited teaching assistantships are offered by the Occupational Therapy Program and Physical Therapy Program. Contact your faculty advisor for more information regarding teaching assistant.

Teaching Assistants and Teaching Practicum – It is accepted that a student can serve as a paid teaching assistant and receive credit for their teaching experience in the form of Teaching Practicum (RSC 8188), as long as the following provisions are met:

- Teaching Practicum has separate, identifiable responsibilities than those responsibilities the student has a Teaching Assistant.
- Teaching Practicum must be a faculty mentored experience.
- Teaching Practicum is arranged in consultation with the student’s advisor.

Transfer of Credits - Students may transfer a maximum of 12 graduate-level credits earned as a non-degree seeking student at the University of Minnesota with Rehabilitation Science faculty approval. For MS students, 60% of a student’s total course credits must be completed after official enrollment in the Rehabilitation Science Program. Graduate credits earned at other recognized graduate institutions may be applied if the course work (1) was taken as an enrolled, graduate degree seeking student; (2) appears on official graduate school transcripts; and (3) is accepted by the Rehabilitation Science faculty. With approval of faculty, credits earned while pursuing a University of Minnesota master’s degree (post-professional) may be used to meet doctoral degree course requirements. Credits earned through an entry-level master’s degree program, or professional doctoral program, generally do not meet the requirements, but may be
petitioned. Transfer of credits from other institutions is not allowed for courses completed through independent (correspondence) study, through extension, or taken before the awarding of a baccalaureate degree. In the case of a transfer from a non-United States institution, graduate course credits to be transferred must have been earned in a program judged by the University graduate program to be comparable to a graduate degree program of a regionally accredited institution in the United States. Transfer of thesis credits is not allowed.

**Tuition and Fees** - Current tuition rates and related fees can be found by visiting the following website:

http://onestop.umn.edu/finances/costs_and_tuition/index.html

Students should contact the DGS–Assistant for a specific breakdown of tuition and fees.

--- Registration Requirements and Procedures, Grade Requirements, Time Limits, and Termination ---

**Registration Requirements and Procedures** – Students need to meet with their advisor to develop a plan of study and to plan the courses they will take each semester. Students are encouraged to attend full-time (6 credits or more of graduate level work Fall and Spring semester; 3 credits Summer Session). Summer enrollment is optional. Students may enroll in the program as a part-time student (<6 credits per semester) upon approval by the student’s advisor. All Graduate School students are required to retain Active Status with the Graduate School for the duration of the student’s studies (see page 5). Students should register early, if possible, so faculty can confirm that there are a sufficient number of students enrolled to offer the course, and to avoid late registration fees. Generally, except for independent study courses, four students must be registered for a course, otherwise, the course may be canceled. Students should visit the Onestop or MyU student websites for registration instructions and procedures (see page 4 for web addresses). If you are asked to provide a permission number for registration, or if registration assistance is needed, or for any other special needs a student may need regarding registration procedures, please contact the DGS-Assistant.

**Minimum Grade Requirements** - Students must maintain a minimum cumulative GPA of 3.0 for all course work taken in the degree program; receive a C- grade or better in any individual course taken for letter grade; and/or a “pass” (S) grade for courses taken pass/fail (S/N). DGS will coordinate the review of student transcripts annually. Students with GPA below the minimum cumulative GPA of 3.0; students receiving less than a C- grade in any individual course taken for letter grade; students receiving a N (fail) grade in any course taken pass/fail; or students with an incomplete (“I”) on their Degree Program Form, will be notified, in writing, by the DGS and/or DGS-Assistant. Advisors will get a copy of this notification. The notification will outline the deficiency and outline a mechanism and timeframe for correcting the deficiency. Please see “Termination of Graduate Studies” (page 11). For students with “I” grades on the Degree Program Form, see “Incomplete Grades”(page 10).
Incomplete Grades - Students with “I” grade(s) on their Degree Program form will have 3 consecutive semesters, including Summer Session, to complete the coursework for letter grade. After 3 consecutive semesters, if the work has not been completed for letter grade, the grade will be assigned an “F” letter grade unless course instructor approves, in writing, a time extension for completion of the “I” grade. Please consult with your advisor and course instructor to complete “I” grade(s) for letter grade(s).

Time Limit for Earning Degree – All requirements for the PhD degree must be completed and the degree awarded within eight calendar years after initial enrollment to the graduate program. All requirements for the master’s degree must be completed and the degree awarded within the shorter of five calendar years after initial enrollment. Students who are unable to complete the degree within the time limits described above may petition the program and collegiate unit for one extension of up to 24 months for the PhD and 12 months for the MS. Students must obtain the approval of their advisor/s and program DGS and submit the petition for an extension at least six months prior to the end of the time limit. If a petition is approved, the student is notified in writing of the expectations for progress and of the month/year of degree conferral. If the petition is denied, the student is notified in writing that he or she will be terminated from doctoral candidacy and from the graduate program upon expiration of the time limit. Under extraordinary circumstances, students may file a second petition for an additional 12 of 24 month extension after the first extension has expired; however such petitions after the initial extension must be reviewed and approved by the advisor/s, program DGS, and Vice Provost and Dean of Graduate Education. Students who have been terminated under such circumstances may apply for readmission to the program; however, readmission is not guaranteed.

Termination of Graduate Status - Termination of Graduate Status can be based on, but is not limited to, academic course performance and exam performance. In both cases, action to dismiss a student must be preceded by a review of the student’s overall performance by Rehabilitation Science faculty sub-committee. A majority vote by Rehabilitation Science faculty must be registered in order to terminate graduate status of a student. The Faculty may agree to outline a mechanism and time limit for student to satisfactorily correct specific deficiencies and retain Graduate Status. Students are eligible to appeal termination with the Graduate School (www.grad.umn.edu) and/or the Student Conflict Resolution Center (www.sos.umn.edu).

Academic Course Performance: The Graduate School and Program in Rehabilitation Science require that 1 warning be issued to the student regarding unsatisfactory academic course performance before a student is terminated. The warning must include the specific deficiencies and must outline a mechanism and time limit for correcting them. Grounds for Termination of Graduate Status due to academic course deficiency include, but are not limited to:

- Cumulative GPA of less than 3.0 in degree program
- Failure to earn a grade of C- or higher or a Pass (N) on any individual course taken, or any retake of a course.
Exam Performance: Grounds for Termination of Graduate Status due to failure of preliminary written exam, preliminary oral exam or final oral exam, depending on the degree track (MS or PhD).

--- PhD Requirements ---

Course Work - The PhD degree requires a minimum of 36 graduate credits, not including dissertation credits (thesis credits). The minimum of 36 graduate credits is broken down as follows: a minimum of 16 graduate credits of Rehabilitation Science (RSC) courses, which includes 6 credits from a core group of departmental seminars; a minimum of 8 graduate credits of statistics course work; and a minimum of 12 additional graduate credits from RSC courses, non-RSC courses, or a combination of both. Students are welcome to declare a minor, which requires 12 credits of non-RSC coursework. If a student chooses to declare a minor, the student must follow the minor requirements of the program offering the minor. Acceptable statistics courses include, but are not limited to: PUBH 6450 – Biostatistics I, PUBH 6451 – Biostatistics II, EPSY 8261 – Statistical Methods I, and EPSY 8262 – Statistical Methods II. To fulfill the requirement students need to take both courses in the respective series (Biostats I and Biostats II; Stat Methods I and Stat Methods II). You cannot fulfill the statistics requirement by taking only PUBH 6450 – Biostatistics I and EPSY 8261 – Statistical Methods I. In addition to these minimum requirements, the advisor may require additional courses. Students need to meet with their advisor prior to each semester to plan the student’s course of study.

Minimum Grade Requirements - see page 10.

Language Requirement - None.

Thesis Credits – Rehabilitation Science students pursuing the PhD are required to complete 24 thesis credits (RSc 8888). Thesis credits are typically taken upon successful completion of the student’s preliminary oral examination. In rare instances, some students may begin to work on their thesis prior to completion of coursework and their preliminary examinations. This is most likely in cases of students entering with a master’s degree in a similar research area, substantial past research experience, and pursuing a multiple manuscript format to their dissertation. In such cases, the advisor may request to the DGS early registration for thesis credits. The mechanism for this request is to complete the student’s graduate degree plan form and the advisor must briefly describe in an email request the thesis work the student will initiate, as well as the number of credits. Typical activities would include writing the dissertation literature review, collecting pilot data, planning or conducting dissertation data collection, or writing the dissertation proposal. Note skills training activities that are not directly thesis work should be completed as independent study, or research problems type credits, rather than early thesis registration. Upon DGS approval of the degree program form, the student may register for these credits by requesting a permission number from the DGS Assistant. This mechanism should not be used for training activities that are not directly part of the thesis work. If the early thesis registration is allowed, students may register for up to 12 thesis credits prior to the prelim oral examination. The remaining 12 thesis credits are completed after successful completion of the preliminary oral exam.
Official Graduate Degree Plan - By the time a student has completed 16 credits, and ordinarily not later than the third semester of registration, the student must file with the Graduate School an official Graduate Degree Plan (see Appendix C). This form lists all courses the student has completed or will complete for the degree in Rehabilitation Science (as approved by the advisor).

Preliminary Written Exam - All doctoral students are required to pass a written examination in their major field. This examination covers all work completed in the major field and must include work completed in the minor or supporting field, plus questions probing the student’s ability to collect and interpret information from the scientific literature. It will also determine whether the students have retained and integrated knowledge from their course work, have the ability to articulate their knowledge in written form, and have the ability to reason and apply knowledge toward new questions.

A student cannot sit for Preliminary Written Exam if they have an “I” grade in their program of study (listed on the Official Graduate Degree Plan, page 12). If a student does have an “I” on their Degree Program form, see “Incomplete Grades” (page 10).

The advisor, in consultation with the student, will recommend a Preliminary Written Examination committee to the DGS, as well as a chair. The advisor cannot serve as chair. The committee will include five members: 3 internal members, 1 external member, and a 5th member who is either internal or external. The DGS approves the committee and chair. The major responsibility of the committee chair is to organize the reexamination process, if necessary. Students are encouraged to meet with each committee member to discuss the scope of their questions and to identify critical readings at least 4-6 weeks before the exam. After the committee and committee chair are identified, the advisor will ask each committee member to submit examination questions which can be completed in 6 hours or less. The student, in consultation with his/her advisor, will select days for the exam. The student must inform the DGS-Assistant of the exam date once the exam date is set. The examination will be conducted over three consecutive days and will be divided by the advisor into three short exams (i.e., two committee members’ questions on day #1 & #2; faculty advisor’s question(s) on day #3). On the first two days, students will receive their examinations at 8:00 AM and will return their responses by 8:00 PM of that day. On the third day, students will receive their examination at 8 AM and will return their responses by 2 PM. Each day the exam will be emailed to the student, who needs to confirm receipt of the exam by email or phone. The student will return the exam by email and receipt of the exam from the student will be confirmed by the advisor or DGS-Assistant. Because the examination is not proctored, the student will be required to sign the following statement: "I completed this exam alone, without assistance from any other person. I pledge that I will keep this examination confidential, and not disclose (verbally, electronically, or in writing) specific examination content (questions or answers) to others or reproduce any portion of the examination in any manner." Each member of the committee will grade his/her specific questions on a pass/fail basis.

The following criteria will be used to evaluate the initial Preliminary Written Exam:
4 or 5 votes of pass = pass
3 votes of pass = fail with opportunity for reexamination
2 or less votes of pass = fail with student subject to “Termination of Graduate Status” (page 11)

All students will be notified by the advisor, in writing, regarding the vote that they received on the initial Preliminary Written Exam. A copy of this notification will be put on file with the DGS assistant.

If a student receives a vote of 3 or less, the student will be notified by the advisor, in writing, that he/she has failed the Preliminary Written Exam. If a student receives 3 votes of pass, the student must request to his/her advisor, in writing, his/her desire for a re-examination. The student must make this written request within two weeks of having received results of the original preliminary written exam. The committee chair will organize the re-examination with the committee members. Methods and procedures for re-examination are at the discretion of the committee and DGS and may include oral and written components. The advisor will outline the methods, procedures, and terms of re-examination in a written letter to the student. A copy of this letter will go on file with the DGS.

If a student receives 2 or less votes of pass, please see “Termination of Graduate Status” (page 11).

Preliminary Oral Exam - All doctoral students are required to pass a preliminary oral examination in their major field. Students must successfully complete their preliminary written exam prior to attempting their preliminary oral exam. The preliminary oral examination must include a dissertation proposal and may include work in the major field, the minor field, and any work fundamental to these areas. Additionally, the oral examination can include questions elaborating on earlier responses from the preliminary written examination. A written proposal describing the intended dissertation project should be submitted to all committee members at least two weeks in advance of the examination date. The proposal must include an introduction, comprehensive review of the literature, specific aims, hypotheses, and detailed methods (i.e., a condensed research proposal will not provide the detail that will be expected). The advisor, in consultation with the student, will recommend a preliminary oral examination committee to the DGS. Upon approval, the student formally assigns their examination committee with the Graduate School for final approval. This final process is completed online. Once the committee is approved, the student must formally schedule the preliminary oral examination with the Graduate School and do so at least one week in advance of the examination. The student should contact the DGS-Assistant for instruction on scheduling the preliminary oral examination with the Graduate School. The examining committee includes five members (minimum of four with advisor approval), but may include additional members at the discretion of the advisor. Three of the committee members must be from the major field (Rehabilitation Science) and two (or one) from outside the major (non-Rehabilitation Science faculty). All assigned members must be present in person or electronically (e.g., ITV or Skype) at the preliminary oral examination; the absence of any member results in an invalid examination. The preliminary oral examination committee may or may not include the same members as the preliminary written examination committee. Student should reserve a room through the DGS assistant for a minimum of two
hours. The outcome of the examination is recorded in one of three ways: pass, pass with reservations, or fail. The voting proportions necessary for these decisions are as follows: if the committee consists of five members, a favorable verdict for passing consists of either a unanimous vote or a vote of 4-1; (If the committee consists of four members, a favorable verdict for passing consists of either a unanimous vote or a vote of 3-1). The proposal, once approved, represents an agreement between the doctoral candidate and the student regarding the expectations of the dissertation project that the student will eventually defend at the final oral examination. The format of the final dissertation document also requires the agreement of the committee. The format for the Preliminary Oral Defense will be: student’s presentation of their dissertation proposal (30-40 minutes) followed by questions about the dissertation proposal or about student’s previous coursework.

**Graduation Packet** – After successful completion of the preliminary oral exam, the student should request their Graduation Packet from the University’s Graduate School. The graduation packet includes the forms the student needs for scheduling the final oral exam. The student should contact the DGS – Assistant for information related to the graduation packet, and information on scheduling the final oral exam.

**Final Oral Exam** - The final oral exam consists of a seminar in which the candidate defends his/her dissertation project to the examining committee and other members of the scholarly community. After the public portion is concluded, the student will meet privately to respond to additional questions from the examining committee. The examining committee is the same as the committee assembled for the Preliminary Oral Exam. Committee substitutions on the examining committee may be necessitated by such circumstances as a faculty member’s temporary absence on leave from the University. The advisor or DGS must request the Graduate School’s approval of such substitutions well in advance of the examination. Substitutions necessitated by emergency situations must also be approved in advance. In such cases, the committee chair should consult with the Graduate School staff by telephone before the start of examination.

The dissertation is not only a representation of a student’s academic work, but also a reflection on the faculty advisor, the dissertation committee, the Rehabilitation Sciences Graduate Program, and the University of Minnesota. Because stylistic conventions vary greatly from one scientific field to another, the body of the dissertation may differ. The body of the dissertation may follow the traditional individual chapter format (introduction, review of literature, methods, results, discussion chapters) or represent a series of chapters (manuscript style). Regardless of the style, the dissertation must include a comprehensive review of the literature, integration of the findings, and bibliography. Students should consult with their faculty advisor and committee regarding what is an acceptable format. A written copy of the dissertation project should be submitted to all committee members at least three weeks in advance of the examination date. Three readers (2 internal & 1 external) must sign off that the dissertation is ready for defense one week prior to the defense. Students should reserve a room through the DGS assistant for a minimum of two hours. Students are not expected to provide food or beverages at their dissertation defense. Voting criteria will be the same as for the Oral Preliminary Examination. After any necessary final
revisions, students are expected to provide a bound copy of their dissertation for their advisor, and the Rehabilitation Science program.

--- Master’s (MS) Requirements ---

---Plan A: Master’s Degree with Thesis---

**Graduate School Requirements, including Degree Program Form** – MS students are responsible for following Graduate School requirements for degree completion, including proper submission of graduate forms and for meeting deadlines. Degree completion procedures can be found at the following two websites:

http://www.grad.umn.edu/current-students-graduate-student-services-progress/masters
http://policy.umn.edu/education/mastersperformance

**Course Work** - In addition to Graduate School Requirements, MS students must complete a minimum of 23 graduate credits, not including thesis credits. The minimum of 23 graduate credits is broken down as follows: 14 credits of RSC course work, including 4 credits of Rehabilitation Sciences core curriculum; 3 credits of statistics course work; and a minimum of an additional 6 graduate credits from RSC courses, non-RSC courses, or a combination of both. Students are welcome to declare a minor. Sample minors of past students include Gerontology, Clinical Movement Science, or Neuroscience, but other minors may be pursued. If a student chooses to declare a minor, the student must follow the minor requirements of the program offering the minor. Acceptable statistics courses include, but are not limited to PUBH 6450 – Biostatistics I, PUBH 6451 – Biostatistics II, EPSY 8261 – Statistical Methods I, EPSY 8262 – Statistical Methods II. Student advisor may require additional courses.

**Minimum Grade Requirements** - see page 10.

**Language Requirement** – none.


**Preliminary Oral Examination** – The preliminary oral examination for the Master’s Plan A student is directed specifically to review, examination, and approval of the Thesis Proposal by the examining committee. The Preliminary Oral Examination can be scheduled upon advisor and committee agreement prior to the completion of all course work, such that the student may complete the Master’s Thesis in conjunction with some components of their course work. The thesis proposal document format should be agreed upon by the examining committee, but at minimum must include an introduction which includes the purpose and study hypotheses, as well as a methods section that details the plan for the proposed work. A review of literature section is also recommended. This proposal document must be provided to the thesis committee a minimum of two weeks prior to the scheduled preliminary oral examination. The thesis proposal meeting will typically include a 20 minute presentation by the student of the proposed work, and
adequate time for questioning by the committee and defense of the proposal by the student. The total time of the examination should not exceed two hours. The committee may suggest modifications to the proposal and should reach agreement on the student’s thesis plan.

**Final Oral Examination** - Defense of thesis research to an examining committee. The final examination committee must consist of at least three members, including the advisor/s. All members of the committee and the student must participate in the final examination. At least one member must represent a field outside the student’s major field. If the student has a declared minor(s), the outside member(s) must be from the minor field(s). Members cannot satisfy the requirement with respect to more than one field. Advisor may serve as chair for the final exam. Committee member also serve as thesis reviewers.

---Plan B: Master's Degree without Thesis---

**Graduate School Requirements, including Degree Program Form** – MS students are responsible for following Graduate School requirements for degree completion, including proper submission of graduate forms and for meeting deadlines. Degree completion procedures can be found at the following website:

[http://www.grad.umn.edu/current-students-graduate-student-services-progress/masters](http://www.grad.umn.edu/current-students-graduate-student-services-progress/masters)

**Course Work** - In addition to Graduate School Requirements, MS students must complete a minimum of 30 graduate credits. The minimum 30 graduate credits is broken down as follows: 14 credits of RSC course work, including 4 credits of seminars in rehabilitation science; 3 credits of statistics course work; and a minimum of an additional 6 graduate credits from RSC courses, non-RSC courses, or a combination of both. Students are welcome to declare a minor. Sample minors of past students include Gerontology, Clinical Movement Science, or Neuroscience, but other minors may be pursued. The student must follow the minor requirements of the program offering the minor. Acceptable statistics courses include, but are not limited to PUBH 6450 – Biostatistics I, PUBH 6451 – Biostatistics II, EPSY 8261 – Statistical Methods I, EPSY 8262 – Statistical Methods II. The balance of courses to comprise the 30 credit minimum is chosen by agreement between the student and advisor. Student advisor may require additional courses.

**Minimum Grade Requirements** - see page 11.

**Language Requirement** - none.

**Plan B Project(s)** – Students must demonstrate familiarity with the tools of research or scholarship in their major field, the ability to work independently, and the ability to present the results of their investigation effectively, by completing at least one Plan B project. The graduate faculty in each major field may require as many as three such projects. The Plan B project(s) should involve a combined total of approximately 120 hours of work. The graduate faculty in each major field specifies both the nature and extent of the options available to satisfy this
requirement, and whether the requirement is to be satisfied in conjunction with, or independent of, the courses in the student’s program.

**Final Examination** – The Graduate School requires a final examination for Plan B candidates; this may be written, oral, or both, at the discretion of the graduate faculty in the major field. The final examination cover the major field and the minor or related fields, and may include any work fundamental to these fields. Students should make the Plan B project(s) available to the examining committee for its review well in advance of the final examination. If a final oral examination is held, it is conducted as a closed examination, attended by only the student and the examining committee. All committee members must be present at the oral examination; the absence of any member results in an invalid examination. A committee of at least three examiners is recommended by the faculty advisor in the major field at the time the official degree program is submitted. This committee consists of two representatives from the major field and one from the minor or a related field. Committee members cannot represent more than one filed simultaneously. The examination is coordinated by the chair of the student’s examining committee. The results of the examination are reported on the Final Examination Report Form, which the student must obtain from the Graduate School or by requesting a Graduation Packet from the Graduate School in advance of the exam. A majority vote of the committee, all members present and voting, is required to pass the examination. A student who fails the examination maybe terminated from the graduate program or may be allowed, on unanimous recommendation of the examining committee, one retake of the examination, providing the reexamination is conducted by the original examining committee.
--- Faculty ---

Core Faculty

James Carey, PhD, PT - carey007@umn.edu
Professor, Program in Physical Therapy
  Motor Recovery from Stroke, Neuroplasticity/functional Magnetic Resonance Imaging (fMRI), Academic Administration.

Arin Ellingson, PhD – ellin224@umn.edu
Assistant Professor, Program in Physical Therapy
  Research focus on detecting biomechanical and imaging based biomarkers of spinal health and identify aberrant spinal motion patterns, quantifying intervertebral disc pathology, and isolating neuromuscular responses to pain.

Bernadette Gillick, PhD, MS, PT – gillick@umn.edu
Assistant Professor, Program in Physical Therapy
  Cortical Plasticity, Neurologic Insult Recovery in Pediatric and Adult Populations, Transcranial Magnetic Stimulation, Behavioral Training, Motor Function.

Andrew Hanson, PhD – Andrew.Hansen2@va.gov
Associate Professor, Program in Rehabilitation Science
  Design and evaluation of rehab technologies, human biomechanics, rehabilitation engineering, prosthetics and orthotics, rocker shoes, motion analysis, wheelchair design and wheelchair evaluation.

Manda Keller-Ross, PhD, DPT – kell0529@umn.edu
Assistant Professor, Program in Physical Therapy
  Mechanisms of exercise intolerance in heart failure, neuromuscular limitations contributing to muscle fatigue and central inhibition in heart failure, novel therapeutic strategies to treat musculoskeletal myopathies and reduce muscle fatigue in adults with heart failure.

Teresa Kimberley, PhD, PT – tjk@umn.edu
Associate Professor, Program in Physical Therapy

Wynn Legon, PhD – wlegon@umn.edu
Assistant Professor, Program in Physical Therapy
  Interested in developing and advancing transcranial focused ultrasound for non-surgical neuromodulation in humans.
Dawn Lowe, PhD – lowex017@umn.edu  
*Director of Graduate Studies (DGS) and Associate Professor, Program in Physical Therapy*  

Paula Ludewig, PhD, PT - ludew001@umn.edu  
*Professor, Program in Physical Therapy*  
Shoulder Biomechanics & Rehabilitation, 3D Human Motion, Kinesiology, Electromyography, Ergonomics.

Peggy Martin, PhD, OTR/L – marti370@umn.edu  
*Director and Assistant Professor, Program in Occupational Therapy*  
Adult Education, Development of Expertise, Clinical Reasoning, Movement Analysis, Development Disabilities, Sensory Integration.

Virgil Mathiowetz, PhD, OTR - mathi003@umn.edu  
*Associate Professor, Program in Occupational Therapy*  

Corey McGee, PhD, OTR/L, CHT – mcge0062@umn.edu  
*Assistant Professor, Program in Occupational Therapy*  
Hand strength requirements for successful occupational performance; outcomes of occupational therapy interventions in hand and burn rehabilitative settings; teaching outcomes.

Michael Potegal, PhD, LP – poteg001@umn.edu  
*Associate Professor, Program in Occupational Therapy*  
Behavioral aspects of vestibular function; spatial orientation. Emotional organization of children’s tantrums. Anger and aggression in humans and other animals.

Patricia Schaber, PhD, OTR/L, FAOTA – schab002@umn.edu  
*Associate Professor, Program in Occupational Therapy*  
Geriatrics, specifically, dementia related disorders and family centered care models of practice; occupational therapy assessment and intervention with Alzheimer's disease an related disorders; and scholarship of teaching and learning.

LeAnn Snow, MD, PhD – snow0018@umn.edu  
*Assistant Professor, Program in Physical Therapy*  
Age, Exercise, and Rehabilitation; Biology of Aging; Effects of Exercise on Nerve and Muscle Function in Neuromuscular Disorders.
LaDora Thompson, PhD, BS PT - thomp067@umn.edu
Director and Professor, Program in Physical Therapy
Theory of Therapeutic Exercise, Biology of Aging, Exercise Physiology of the Elderly, Geriatric Rehabilitation, Aging Skeletal Muscle, Exercise and Inactivity, Skeletal Muscle Physiology, Functional Assessment, Congestive Heart Failure.

Ann Van de Winckel, PhD, MS PT – avandewi@umn.edu
Assistant Professor, Program in Physical Therapy
The primary goal of my research agenda is to understand the neural mechanisms of neuroplasticity and recovery after stroke through the use of fMRI, structural and functional connectivity, to determine its impact on clinical sensorimotor outcomes.

Affiliate Faculty

John Ferguson, PhD (John.Ferguson1va.gov)
Ward Glasoe, PT, PhD (glaso008@umn.edu)
Linda Krach, PhD (krach002@umn.edu)
Lars Oddsson, PhD (loddsson@umn.edu)
Sharyl Samargia, PhD (sharyl.samargia@uwrf.edu)
Erica Stern, PhD, OTR/L (stern001@umn.edu)
--- Course Descriptions ---

Students should check with DGS – Assistant (page 4) for class meeting times and for possible changes in the scheduling of courses.

RSC 5058 – Anatomy for Rehab Science (6 credits)
Study of gross human anatomy through lecture/laboratory experiences that include cadaver dissection of extremities, head, neck, back, abdomen, thoracic, pelvic regions with correlation to clinical conditions. Cross listed with PT 6058. Offered every Summer session.

RSC 5101 – Mathematical Tools for Research Applications in Health, Rehab, and Human Movement Sciences (1 credit)
This course is intended to prepare the student entering graduate school for immersion into quantitative research and coursework. Review of mathematical formulas and calculations will be completed for quantitative research approaches in health, rehabilitation and human movement sciences. Application examples and practice problems are the focus of the course. Specifically application of basic algebra and geometry, solving equations for unknowns, logarithmic transforms, derivatives and integrals, matrix methods, and use of macros in research applications will be mastered using an online format. This course does not replace specific courses in mathematics or statistics. Advanced courses in statistics, instrumentation, and signal processing are commonly required in graduate programs. Computer based. Primarily online. Offered Fall and Spring semesters.

RSC 5102 – Hot Topics in Aging (1 credit)
This course is intended to provide a platform of understanding about the major issues surrounding biological research in aging. This course will include a combination of student- and faculty-led discussions on select research topics that are highly relevant to the field of biogerontology research, along with seminars on scientific integrity. Student participants will lead discussions focused on their area of research expertise, utilizing a combination of review articles and research articles and case studies of scientific misconduct. Faculty will provide students with a tour of their laboratory, followed by discussion of literature published by their laboratory dealing with aging and/or proteomics. This course is directed to graduate students and post-doctoral fellows currently engaged in conducting research in the area of biological aging. Cross-listed with Gerontology. Offered Spring semester of odd-numbered years.

RSC 5103 – Seminal Milestones in the Biology of Aging (1 credit)
This course is intended to provide a platform of understanding about the major issues surrounding biological research in aging. The course will utilize original literature, including both seminal, historical background papers and the most recent progress, in the field of biogerontology research as a starting point for in-depth discussions. This course is directed to graduate students and post-doctoral fellows currently engaged in conducting research in the area of biological aging. Cross-listed with Gerontology. Offered Fall semester of even-numbered years.
core course  RSC 5106 – Rehabilitation Science: Past, Present, Future (1 credit)
This course will prepare students to think critically about rehabilitation science literature, as well as prepare students to write persuasively on scientific topics. This course will include lecture presentations and discussion/interaction sessions planned jointly by students and faculty. Students will explore the origins of Rehabilitation Science (and Physical Medicine & Rehabilitation), including definitions, terminology, core theories, and core and related disciplines; explore the current and evolving status of research in the field and the research agenda; identity key stakeholders, funding agencies and funding mechanisms in rehabilitation science research; demonstrate the ability to engage fellow students in an active learning process on a key rehabilitation science topic; and demonstrate understanding of a key rehabilitation science topic through a written format. Offered Fall semester 2015, Fall semester 2018, Fall semester 2021.

RSC 5135 - Advanced Biomechanics I: Kinematics (3 credits)
Addresses two fundamental questions in human biomechanics: 1) how to describe movement, and 2) how to measure movement, with an emphasis on three-dimensional techniques. Includes lecture, laboratory exposure, and seminar discussion of basic and applied biomechanics, pathokinesiology, and rehabilitation literature. Class meets with RSC 8135. Course assignments vary for those registered at different levels. Offered Fall semesters of odd-numbered years.

RSC 5200 – Introduction to Transcranial Magnetic Stimulation (TMS) (3 credits)
Theory and application of transcranial magnetic stimulation (TMS) to measure corticospinal excitability will be presented. Students enrolled in this class will receive TMS and will need to sign a consent form. There are health-related restrictions for receiving TMS and students who have questions should contact the Program in Rehabilitation Science. The following testing methods will be included: resting and active motor thresholds, single hemisphere paired-pulse testing, bilateral interhemispheric inhibition paired-pulse testing, input-output recruitment curves, cortical silent periods, H reflex testing, priming, and paired associative stimulation. MRI navigated TMS and repetitive TMS (rTMS) will be included. Offered Fall semesters of even-numbered years.

core course  RSC 5206 – Academic Ethos (1 credit)
Explicit/implicit culture unique to academia. Early understanding within/beyond rehabilitation science. Role of higher education in society, academic freedom, tenure, corporatization of education, accreditation, globalization of education, regulatory monitoring of research, faculty scholarship/governance. Offered Spring semester 2017, Spring semester 2020, Spring semester 2023.

RSC 5231 – Clinical Biomechanics (variable credits; 2-5)
Course material covers basic principles of biomechanics and forces and structures internal and external to the body responsible for normal and abnormal human movement. Joint and tissue
mechanics, muscle function, task analysis, and gait mechanics are taught through lecture and laboratory practice. Cross Listed with PT 6231. Offered every Fall semester.

**RSC 5235 – Advanced Biomechanics II: Kinetics (3 credits)**
This course examines the forces which create human motion and which are produced within the body as a result of human motion. Using lectures, laboratory experiments, and group discussion we will develop the skills for measuring the kinetics of human motion. Clinical movement assessment as well as exercise, sport, and activities of daily living will be measured and analyzed to describe the transfer of forces within the body. We will develop two dimensional rigid body dynamics models to describe human kinetics, discuss forward and inverse dynamics solutions, and develop hypotheses to describe whole body and joint kinetics. Class meets with RSC 8235. Offered Spring semesters of even-numbered years.

**RSC 5281 – Scientific Foundations – Exercise Theory (3 credits)**
In-depth presentation of fundamental concepts in exercise physiology/exercise biochemistry related primarily to skeletal muscle, secondarily to cardiovascular system/connective tissue. Exercise/performance-enhancing ergogenic aids. Cross-listed with PT 6281. Offered every Fall semester.

**RSC 5294 - Independent Study in Rehabilitation Science (variable credits, 1-3)**
Independent exploration into significant topics related to Rehabilitation Science. Offered by individual arrangement with faculty. Offered Fall, Spring, Summer.

**core course RSC 5306 – Scientific and Professional Presentation (1 credit)**
This course will focus on the process and practice of oral presentation of scientific inquiry and discoveries. These skills are essential for scientists in all disciplines, yet often guidelines for optimal scientific presentation are not taught or practiced in an educational setting. Specific areas to be covered in this course include: presentation intent, audience analysis, timing, content, keys to effective communication, vocal behavior, and important things to avoid. Context will include conference-style platform or podium presentations, poster presentations, and seminar presentation. The course will involve opportunities to prepare and practice presentation skills and receive constructive feedback in a safe, supportive environment. It is appropriate for students from all disciplines and levels of PhD study. Offered Spring semester 2016, Spring semester 2019, Spring semester 2022.

**RSC 5310 - Physiology for Physical Rehabilitation (variable credits, 1-5)**
This course is designed to convey foundational information regarding human basic physiology and more advanced integrative physiology to provide the student a broad range of knowledge on how the human body works at rest, exercise and as we age. Basic cell physiology which serves the human body’s infrastructure for function in different cell types for various organ systems will be discussed with the major emphasis of this course being on the human body as a system. Along these lines, most of the content will relate to integrative physiology, as our systems are often redundant in regulating homeostasis. The objective of this course is to prepare the student for the
study of pathophysiologic changes within the human body. Cross-listed with Physical Therapy. Offered every Spring semester.

**RSC 5814 - Age, Exercise, and Rehabilitation (2 credits)**
Overview of normal physiological responses to exercise in the elderly. Comparison of exercise-induced responses of the various physiological systems throughout the aging process. Focus on the importance of exercise from a rehabilitation perspective. Offered Fall semesters of even-numbered years.

**RSC 5841 – Applied Data Acquisition and Processing (4 credits)**
This course will introduce students to collecting and processing biomedical time series data. Students will gain experience using data acquisition hardware common in many laboratories, as well as related software for acquisition of the data and digital signal processing. Data sources will include electroencephalography (EEG), electromyography (EMG), wearable sensors, and data from other systems based on the background and interests of students in the class. The overall goal of this course is to provide students with the necessary fundamental skills to run a successful experiment, troubleshoot errors, and produce high quality data sets. Offered Fall semester of even-numbered years.

**RSC 5901 – Scholarly Inquiry in Health Sciences (4 credits)**
This course will explore how research evidence is developed, disseminated, and utilized in health sciences. A qualitative/quantitative scholarly project proposal will be required. Students will critique studies/peer proposals. Cross-listed with OT 7201. Offered every Spring semester.

**RSC 8021 - Application of Proteomics to Aging (1 credit)**
This course is intended to provide a platform of understanding about the use of proteomic technology in aging research. This course will include a combination of faculty- and student-led discussions on select topics that are highly relevant to the field of mass spectrometry and proteomic research. This course also includes an introduction to the NIH/NRSA fellowship applications. Student participants will lead discussions focused on research articles highlighting current proteomic techniques. This course is directed to graduate students and post-doctoral fellows currently engaged in conducting research in the area of biological aging. Cross-listed with Gerontology. Offered Fall semesters of odd-numbered years.

**RSC 8022 – Career in Aging Research (1 credit)**
This course is intended to provide a platform for preparing pre-doctoral students and post-doctoral fellows for the next step in their academic career. The course will include a combination of student- and faculty-led discussions on topics such as preparing for the job interview, including composing a CV and cover letter, preparing grant applications and manuscripts, and developing a course syllabus based on the biology of aging. This course is directed to graduate students and post-doctoral fellows currently engaged in conducting research in the area of biological aging. Cross-listed with Gerontology. Offered Spring semesters of even-numbered years.
core course RSC 8106 – Critical Analysis of Scientific Literature (variable credits, 1-2)
This course will focus on the process of critical review, appraisal and synthesis of scientific literature. Overview of organizing and writing literature reviews for a traditional dissertation, systematic reviews, and peer review for scientific manuscripts will be included. The course will involve substantive review of the literature and writing in your anticipated area of dissertation work. Offered Fall semester 2016, Fall semester 2019, Fall semester 2022.

RSC 8130 - Current Literature (variable credits, 1-3)
Review of current literature in the area of rehabilitation science. Offered by individual arrangement with faculty. Offered Fall, Spring, Summer.

RSC 8135 - Advanced Kinesiology (3 credits)
This course is designed to address two fundamental questions in human biomechanics: 1) how to describe movement, and 2) how to measure movement, with an emphasis on three-dimensional techniques. The course will include lecture, laboratory exposure, and seminar discussion of basic and applied biomechanics, pathokinesiology, and rehabilitation literature. Class meets with RSC 5135. Offered Fall semesters of odd-numbered years.

RSC 8170 - Special Topics in Rehabilitation Science (variable credits, 1-3)
Advanced topics in Rehabilitation Science with papers required. Offered by individual arrangement with faculty. Offered Fall, Spring, Summer.

RSC 8185 - Problems in Rehabilitation Science (variable credits, 1-3)
Supervised research experience in a selected problem in rehabilitation science. Offered by individual arrangement with faculty. Offered Fall, Spring, Summer.

RSC 8188 - Teaching Practicum (variable credits, 1-3)
Supervised experience in teaching and evaluation with development of skills in effective use of instructional materials in lecture and lab courses. Students can expect to: create learning objectives for teaching unit(s); conduct a thorough review of current literature on topic; prepare classroom presentations; deliver classroom presentations; consult with faculty for feedback prior to presentation; compose test questions; proctor examinations. Offered by individual arrangement with faculty. Offered Fall, Spring, Summer.

RSC 8192 - Research Design in Rehabilitation Science (4 credits)
The goals of this course are to develop abilities to critically evaluate the peer-reviewed literature. It will also enable students to identify and apply appropriate statistical procedures and interpret the meaning of statistical analyses. Finally, it will give students an opportunity to present the aims, methods, intended analyses, and preliminary results of their own research. Additionally, students will meet individually for 2h every month with the lecturer to work on the Method section of a paper related to their PhD project. This paper will be critically reviewed and graded as end-evaluation for this class. Cross-listed with Physical Therapy. Offered every Fall semester.
core course **RSC 8206 – Grant Writing (2 credits)**
Process of applying for individual National Institutes of Health (NIH) pre-doctoral research training fellowship. Overview of NIH Program Announcement PA-11-111/NIH SF424 individual fellowship application guide required for application will be included. Substantive writing of components of NIH fellowship. Offered Fall semester 2014, Fall semester 2017, Fall semester 2020.

**RSC 8235 – Human Kinetics (3 credits)**
This course examines the forces which create human motion and which are produced within the body as a result of human motion. Human Kinetics draws upon basic biomechanics principles to uncover solutions for kinetics problems as well as the sensitivity of those solutions to measurement errors, assumptions, and limitations of the solution formulations. Using lectures, laboratory experiments, and group discussion we will develop the skills for measuring and analyzing the kinetics of human motion. Clinical movement assessment as well as exercise, sport, and activities of daily living will be measured and analyzed to describe the transfer of forces within the body. We will develop two dimensional rigid body dynamics models to describe human kinetics, discuss forward and inverse dynamics solutions, and develop hypotheses to describe whole body and joint kinetics. Class meets with RSC 5235. Offered Spring semesters of even-numbered years.

**RSC 8282 - Problems in Human Movement (4 credits)**
Fundamental principles of neurophysiology, neurology, motor control, and motor learning as a basis for therapeutic intervention in motor dysfunction. Course cross-listed with PT 6282. Offered every Spring semester.

core course **RSC 8306 – Peer Review and Publication (variable credits, 1-2)**
This course will focus on the process of publication in the scientific literature, with emphasis on publication of original research. Overview of organizing and writing for publication, and the peer review process for scientific manuscripts will be included. The course will involve substantive writing practice in your anticipated area of scientific inquiry. Offered Spring semester 2015, Spring semester 2018, Spring semester 2021.

**RSC 8333 – Full-Time Equivalent Master’s (1 credit)**
8333 is a one-credit registration option for eligible Master’s students who must certify full-time status to be in compliance with requirements of the University and/or external agencies (e.g. employment as a graduate assistant; loan deferment). Students eligible for 8444 can be employed in one of the low-tuition/low-fringe job classes.

**RSC 8444 – Full-Time Equivalent Doctoral (1 credit)**
8444 is a one-credit registration option for eligible doctoral students who must certify full-time status to be in compliance with requirements of the University and/or external agencies (e.g. employment as a graduate assistant; loan deferment). Students eligible for 8444 can be employed in one of the low-tuition/low-fringe job classes.
RSC 8666 - Doctoral Pre-Thesis Credits (1-18 credits)

RSC 8777 - Thesis Credits: Master’s (10 credits)

RSC 8888 - Thesis Credits: Doctoral (24 credits)

GRAD 999 - Graduate School Active Service (0 credits)
Course to meet Graduate School’s registration policy requiring all Graduate School students to register every Fall and Spring. GRAD 999 is a non-credit, non-cost course that students take to stay active within the Graduate School. A student needs advisor approval—in writing—in order to register for GRAD 999. Permission should come from the advisor via email and both the DGS and DGS-Assistant should be copied on the email. Written permission should be granted in advance of the first day of class. If a student registers for GRAD 999 without advisor permission, a hold will be placed on the student’s record for the following semester. The student will then need to consult with his/her advisor on a plan of study in order to release the hold. The consultation needs to occur before the first day of class.
Mutual Responsibilities in Graduate Education for Graduate Students and Faculty

I. Introduction

A major purpose of graduate education at the University of Minnesota is to instill in each student an understanding of and capacity for scholarship, independent judgment, academic rigor, and intellectual honesty. Graduate education is an opportunity for the student to develop into a professional scholar. Graduate research and teaching assistantships offer an "apprenticeship" experience in the academic profession as well as financial support. It is the joint responsibility of faculty and graduate students to work together to foster these ends through relationships that encourage freedom of inquiry, demonstrate personal and professional integrity, and foster mutual respect. This shared responsibility with faculty extends to all of the endeavors of graduate students, as students, employees, and members of the larger academic community.

High quality graduate education depends on the professional and ethical conduct of the participants. Faculty and graduate students have complementary responsibilities in the maintenance of academic standards and the creation of high quality graduate programs. Excellence in graduate education is achieved when both faculty and students are highly motivated, possess the academic and professional backgrounds necessary to perform at the highest level, and are sincere in their desire to see each other succeed.

II. Suggested Principles for Mutual Roles and Responsibilities

The following principles illustrate what students should expect from their programs and what programs should expect from their students, to help achieve excellence in graduate education:

Principle 1: Information About Policies and Procedures

The University, collegiate units and graduate programs are responsible for providing students and prospective students with access to information about their graduate program, areas of specialization, degree requirements, and average time to completion of degrees. Graduate programs are responsible for providing access to information about graduate student financial support in the program, such as the prospects for fellowships, assistantships or other financial support and the proportion of students receiving financial support. In addition, graduate programs should provide students and applicants with information about career experiences of graduates of the program. All such information should be presented in a format that does not violate the privacy of individual students. Programs are encouraged to provide relevant information in their handbooks, websites or other readily accessible formats.

Students are responsible for keeping themselves informed about current policies of their program, their collegiate unit, and the University that affect graduate students. Students and alumni also have a responsibility to respond to program inquiries about their career development.

Principle 2: Communication About Academic Status
The collegiate unit and graduate programs are responsible for providing students with information about their individual academic status: who in the collegiate unit and in their graduate program is responsible for communicating to them about admission issues and progress through the degree program, how the communication will take place, and the possibility for appeal to a third party for assistance in resolving disputed issues.

Students are responsible for communicating with the collegiate unit and their graduate program about changes in their circumstances that affect their status and progress toward the degree.

**Principle 3: Research Contributions**

Individual faculty as research directors are responsible for providing students with appropriate recognition for their contributions at conferences, in professional publications, or in applications for patents. It is the faculty member's responsibility to clarify the principles for determining authorship and recognition at the beginning of any project.

Students are responsible for discussing their expectations regarding acknowledgment of research contributions or intellectual property rights with the appropriate person(s) in the research team, preferably early in the project.

**Principle 4: University Governance**

Departments and graduate programs are responsible for defining specific opportunities for student participation on committees as they deem appropriate. The University recognizes that graduate students make important contributions to governance and decision making at the program, department, college, Graduate School and University level; specific roles for participation are defined at each level by the relevant governing bodies.

Students are responsible for participating in University governance and decision making that enrich the campus community.

**Principle 5: Respectful Employment Conditions**

University faculty and staff are responsible for assuring that graduate students are able to conduct their work, as students or students/employees, in a manner consistent with professional conduct and integrity, free of intimidation or coercion. Students who are employees also have the protection of all University employment policies and laws. Graduate programs are responsible for providing clear communication to students about the possibility for appeal to a third party for assistance in resolving disputed issues.

Students are responsible for reporting unprofessional conduct to the appropriate body or person, as defined in the academic or employment grievance policy; they should be able to do so without fear of reprisal. Students are responsible for acting in a respectful and fair manner toward other
students, faculty, or staff in the conduct of their academic work or work they may do in connection with an assistantship.

**Principle 6: Conditions of Employment**

The University (through its departments, research projects or other employing units) is responsible for providing to prospective graduate assistants a written offer of financial support before a response to the offer is required. Such communication must indicate their salary and the terms and conditions of their appointment, including the general nature of the work they will be performing, duration of employment, and whether and how this employment is tied to their academic progress. The details of specific teaching or research assignments may need to await later written clarification.

Students are responsible for accepting the conditions of employment only if they believe they are qualified and able to complete the tasks assigned. Students have a responsibility for communicating in writing any changes in their circumstances that affect their ability to fulfill the terms and conditions of their employment.

**Principle 7: Safe Work Environment**

Supervisors are responsible for providing a safe working environment for graduate students, and for developing and publicizing safety policies and training programs to achieve that goal.

Students are responsible for helping to maintain a safe working environment, for adhering to safety policies, for participating in training programs and for reporting safety violations to the proper authority.

**Principle 8: Responsible Conduct of Research**

Students are responsible for carrying out their research in a responsible manner. The faculty and the Director of Graduate Studies (DGS) of the graduate program are responsible for ensuring that students receive training and guidance in the responsible conduct of research as appropriate for each field.

OTHER UNIVERSITY DOCUMENTS may provide information and guidance relevant to the graduate education experience.

- Additional Board of Regents information and guidelines can be found by visiting: [http://www1.umn.edu/regents/polindex.html](http://www1.umn.edu/regents/polindex.html).
- Board of Regents Policy: *Code of Conduct*.
- Board of Regents Policy: *Academic Freedom and Responsibility*.
APPENDICES

APPENDIX A

Annual Student Review Form
Academic Standing, Professional Behavior, and Degree Progress

Date of Review: ______________       Reviewer/Advisor: ______________________________

Student Name: ________________________________  Student ID: ______________________

Degree and Program: ____________________________________________________________

Year Enrolled: _____________________        Credits completed to date: __________________

<table>
<thead>
<tr>
<th>Student Record</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum GPA of 3.0</td>
<td></td>
</tr>
<tr>
<td>Rehabilitation Science Credits (min. 16 credits)</td>
<td></td>
</tr>
<tr>
<td>Seminar Credits (min. 6 credits)</td>
<td></td>
</tr>
<tr>
<td>Statistics Requirement (min. 8 credits)</td>
<td></td>
</tr>
<tr>
<td>Supporting Credits (min. 12 cr.; may include RSC)</td>
<td></td>
</tr>
<tr>
<td>Thesis Credits (min. 24 credits)</td>
<td></td>
</tr>
<tr>
<td>Number of Incompletes</td>
<td></td>
</tr>
<tr>
<td>Responsible Conduct in Research Training</td>
<td></td>
</tr>
<tr>
<td>Immunization Compliance</td>
<td></td>
</tr>
<tr>
<td>HIPAA Compliance</td>
<td></td>
</tr>
<tr>
<td>Milestones – Degree Program Form</td>
<td></td>
</tr>
<tr>
<td>Preliminary Written Exam</td>
<td></td>
</tr>
<tr>
<td>Preliminary Oral Exam</td>
<td></td>
</tr>
<tr>
<td>Reviewer’s Report Form</td>
<td></td>
</tr>
<tr>
<td>Final Oral</td>
<td></td>
</tr>
</tbody>
</table>

Advisor’s comments on academic progress and professional behavior (attach additional comments, as needed):
_______________________________________________________________________________________
_______________________________________________________________________________________

Student’s comments on academic progress and professional behavior (attach additional comments as needed):
_______________________________________________________________________________________
_______________________________________________________________________________________
___ Student is in good academic standing, demonstrates appropriate professional behavior, and is making acceptable progress toward graduation. If student has not completed RCR training or IRB training, student should complete the training at the student’s earliest convenience and prior to the student’s next review. If a student is non-compliant with immunization or HIPAA training, student should become compliant at the student’s earliest convenience and prior to the student’s next review. If a student has incomplete course work, the student should complete the course work for grade prior to the student’s next review.

___ Student is deficient academically, or in the area of professional behavior, and is not making acceptable progress toward graduation. Attached is an agreed upon plan between student and advisor to remedy deficiency.

By signing and dating below, both student and advisor acknowledge that a review of academic standing, professional behavior, and degree progress has been made. In the case of deficient academic standing, professional behavior, and/or degree progress, both student and advisor acknowledge that an agreed upon plan has been developed for correcting deficiency. Any plan to remedy deficiency will include mechanism and timeframe for correcting deficiency. Plan will be reflected in the form of a letter and attached to this form. All documents pertaining to student’s annual review will be attached to the review form and held in the DGS-Assistant’s office. Both student and advisor will get copies of all documents pertaining to the student’s annual review.

__________________________________                   _______________________________________
Student Signature                          Reviewer Signature

__________________________________                   _______________________________________
Date               Date
Appendix B

Individual Development Plan
University of Minnesota Biomedical Sciences Graduate Programs

About the IDP:

Graduate students today are successfully pursuing a wide range of careers in both academic and non-academic environments. PhD students should consider broadening their skill sets to prepare for these possible careers. The individual development plan is an ongoing exercise designed to guide your thinking about your long-term and short-term career plans. To assist in the process, you will take advantage of the web tool myIDP (read more about myIDP here) to identify potential careers and set realistic goals that will help you be successful in whichever career path you choose. To create an IDP, you will assess your skills and interests, explore your career options, and set a few goals related to those careers. This section can take as little as 10 minutes, although we recommend spending additional time researching your career options. Following this exercise, you will meet with a mentor to help you gain insight into your plans for the future.

Start the IDP here:

Step 1: Assess your skills, interests, and values
Go to http://myidp.sciencecareers.org and set up a new account or login. Fill out the skills, interests and values assessments. This will provide you with a list of careers ranked according to your input, found in Consider Career Fit -> My Career Path Matches.

Step 2: Select personalized career paths
Spend some time thinking about and exploring the career options in the "Read About Careers" resources on the IDP website, and explore other web resources. Then select 3 (or more, if you'd like) careers from the list that you think would be the best long-term fit for you. Let the myIDP assessment guide your choice, but you do not have to choose the careers that myIDP ranked highest for you. List your top three careers in the table below, along with the interest and skills match scores from myIDP.

Table 1: Career paths of interest

<table>
<thead>
<tr>
<th>Career path</th>
<th>Percent Interest Match</th>
<th>Percent Skills Match</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 3: Set goals
In the Consider Career Fit -> My Career Path Matches section, take a look at the Skills Match percentages for

---
your chosen career paths. How do your skills, training, and experience match those required (compare your rating to the expert rating)? Identify 5 skills that you could cultivate and list them in the table below. Most importantly, list short-term goals that would help you acquire those skills. When you are creating a list of goals, make them SMART! This means they should be specific, measurable, action-oriented, realistic, and time-bound. You can learn more about setting SMART goals on the myIDP website under Skill Goals -> Quick tips.

Finally, identify mentors who may be able to help you achieve your goals. Mentors can be faculty members, labmates, colleagues, or alumni familiar with the training you seek. Your thesis advisor may or may not be the best mentor for these career-oriented goals.

**Table 2: Make SMART goals to enhance skills**

<table>
<thead>
<tr>
<th>Skill to improve</th>
<th>Short-term goal</th>
<th>Potential mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examples of short-term goals:

**Scientific knowledge**
- Read more of the literature
- Attend a scientific meeting
- Participate in journal clubs
- Attend scientific seminars

**Research skills**
- Learn new lab techniques
- Didactic coursework in research skills (e.g., statistics, computer programming, etc.)
- Consult with your advisor to identify current strengths and weaknesses
- Write and submit a scientific paper
- Gain more experience in the peer review process

**Communication**
- Write scientific communications (commentary, original article, review, blog)
- Establish collaborations
- Join writing group / workshop
- Present your work at a seminar and/or a poster at a meeting
- Volunteer at a museum (Science Museum of Minnesota, Bakken Museum or The Works)
- Participate in the Three Minute Thesis Competition
- Join Toastmasters (http://www.meetup.com/The-Minneapolis-Toastmasters-Club/)

---

**Individual Development Plan**

University of Minnesota Biomedical Sciences Graduate Programs

April 2014

Page 2
Professionalism
- Networking at local and national conferences
- Conduct informal interviews with the intention of establishing network contacts
- Create/update online profile and CV (i.e. LinkedIn) and join groups relevant to career goals

Management and leadership skills
- Volunteer to head a committee within your graduate program or school/college
- Supervise or train another student in your lab
- Coordinate a collaborative research project
- TA a course

Step 4: Meet with a mentor
Discuss the plans outlined above with your advisor or another trusted mentor who can help you gain insight into your short term goals and your desired career path. Potential discussion questions include:
- Do any of your selected career paths involve additional schooling beyond the PhD?
- How much of the needed schooling/training takes place outside of the academic setting?
- How will your employment background and existing skill set influence your entry into and success in your chosen career path?
- What will be the major challenges in achieving success in your chosen career?
- Are you acquiring the skill set(s) that you need to be successful in completing your goals?
- What is the best thing you could do in the next year to help you along your chosen career path?

Step 5: Implement your plan
The myPD website provides tools designed to help you create a timeline for achieving your goals (http://myipd.sciencecareers.org/, explore the Set Goals section). Utilize this link to prioritize and schedule your goals. Continue to revisit these questions in the months and years to come; your goals will evolve as you progress.
Appendix C

UNIVERSITY OF MINNESOTA

Graduate Degree Plan

DIRECTIONS—Use this form to declare your degree plan. Review your major field's student handbook and confer with your faculty adviser and Director of Graduate Studies (DGS) to ensure your plan fulfills minimum graduate education and program requirements. Obtain original signatures from your faculty adviser, co-adviser (if applicable), major field DGS, and minor field DGS (if applicable) indicating their approval and submit to your graduate program for review. A copy of your plan will be sent to your University email following final review.

To ensure privacy online, open in Adobe Reader (free at Adobe.com). Please add the required signature(s) in blue or black ink.

PART 1. Student information

Student name (Last, first, middle)  
University ID  
University email @umn.edu

PART 2. Degree information

Degree sought  
Major  
Track (if applicable)  
Minor (if declared)  
Language Requirement (if required)

If Master's Degree (check one)

☐ Plan A  
☐ Plan B  
☐ Plan C  
☐ 10 Master's Plan A Thesis credits (8777)  
☐ 24 Doctoral thesis credits (8555)  
☐ 4 Doctoral thesis credits (8668)—D.M.A. only  
☐ 12 Doctoral thesis credits (8556)—Ed.D. only

PART 3. Transfer coursework

List all transfer work in chronological order. Official transcripts must be attached unless previously submitted with your application. NOTE: Course type "other" refers to outside of major and/or minor field coursework. A course cannot be used to meet both "major" and "other" course requirements.

<table>
<thead>
<tr>
<th>Term and year</th>
<th>Check one</th>
<th>Department &amp; course number</th>
<th>Course title</th>
<th>Number of semester credits</th>
<th>Grade</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OTHER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TRANSFER COURSEWORK ONLY

Graduate program/college office use only

☐ All international coursework was reviewed by the Graduate Admissions office

To request copies of this form in an alternative format, please call the Disabilities Services liaison at 612-625-6576. The University of Minnesota is an equal opportunity employer and educator. This form is printed on paper made from less than 20 percent post-consumer waste.

OTR158 Page 1 of 2—9/13

37
## PART 4. University of Minnesota coursework

List University of Minnesota coursework required by your Graduate Program in chronological order, beginning with earliest term and year. Do not include the following: xxxx-8777, xxxx-8888, xxxx-8888, Grad 999, xxxx-8333, or xxxx-8444. coursework not applied to the degree. **NOTE:** Course type “other” refers to outside of major and/or minor field coursework. A course cannot be used to meet both “major” and “other” course requirements.

<table>
<thead>
<tr>
<th>Term and year</th>
<th>Check one</th>
<th>Department &amp; course number</th>
<th>Course title</th>
<th>Number of semester credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

## PART 5. Course totals (transfer and UMN coursework)

Major course credit total __________ Other/major course credit total __________ Total course credit total __________

## PART 6. Approval

<table>
<thead>
<tr>
<th>Adviser name</th>
<th>Adviser signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-adviser name</td>
<td>Co-adviser signature</td>
<td>Date</td>
</tr>
<tr>
<td>DGS (major field) signature</td>
<td>Date</td>
<td>DGS (minor field) signature</td>
</tr>
<tr>
<td>Graduate program/college office use only: note any exceptions to University policy</td>
<td>College signature</td>
<td>Date</td>
</tr>
</tbody>
</table>

Administrative officer: __________ Date: __________

OTR185 Page 2 of 2—8/13