

# CLINICAL SCIENCE (CLSC)

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## CLSC 6060 - Systems Analysis and Design (3 Credits)

Collaborative offering with Denver Campus, emphasizing information requirements analysis, logical system specification, detailed system design. Topics include structured system development methodologies, prototyping, file design, systems architecture, systems testing, software design strategies. Students use case tool to develop system specifications.. Crosslisted: ISMG 6060.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

## CLSC 6080 - Database Management Systems (3 Credits)

Offered as a collaborative offering with UCD, this course focuses on the development and management of database systems to support business operations. Important subjects include semantic data modeling, normalization, SQL, fourth generation languages, and client-server database applications. Crosslisted: ISMG 6080.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

## CLSC 6210 - Research Seminars in Clinical Science (1 Credit)

This course provides an overview of the types of clinical translational studies being conducted by senior CLSC doctoral students. The interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages of training, mentors and faculty.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

## CLSC 6211 - Immersion in Community Engagement (3 Credits)

The course focuses on community-based participatory research, community engagement and understanding health disparities through a community immersion experience. Restrictions: Students need to contact the CLSC program prior to registering.

Grading Basis: Letter Grade

Typically Offered: Summer.

## CLSC 6260 - Conducting Clinical Trials for Investigators (2 Credits)

Course is for investigators conducting clinical trials. Course covers good clinical practices/regulations that surround setting up and running clinical trials. Clinical studies and popular press articles highlighting what can go wrong in clinical trials will be reviewed and discussed.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

## CLSC 6270 - Critical Appraisal Seminars in Clinical Science (1 Credit)

This course provides an overview of the approaches for critically appraising common study designs published in the clinical and translational sciences literature, as well as other sources of information.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

## CLSC 6300 - Scientific Grant Review Process: CCTSI Proposals MS (1 Credit)

Students will understand and participate in the process of scientific review of human subject research protocols submitted to the University of Colorado Denver Clinical Translational Research Centers at University Hospital and The Children's Hospital. Prereq: BIOS 6601, BIOS 6602 (or BIOS 6611, BIOS 6612) & CLSC 7500.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

## CLSC 6550 - Applications of Biostatistics to Clinical Research Questions (1 Credit)

Introduction to allow clinician-scientists to be critical consumers of medical literature by improving their ability to discuss statistical issues about their own research and research of others. Familiarity will be gained with commonly used statistical methods and statistical terms.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

## CLSC 6560 - Designs and Mixed Methods in Implementation Research (2 Credits)

This course provides an in-depth examination of study designs, comparative effectiveness research, and qualitative, quantitative and mixed methods approaches to dissemination and implementation research. The focus is application to health care and public health settings.

Grading Basis: Letter Grade

Typically Offered: Fall.

## CLSC 6580 - Qualitative and Mixed Methods in Health Research (3 Credits)

This course provides an in-depth examination of qualitative and mixed methods approaches that are pertinent to health research.

Grading Basis: Letter Grade

Typically Offered: Spring.

## CLSC 6585 - Power for Multilevel & Longitudinal Studies (2 Credits)

Course covers power and sample size methods for longitudinal and multilevel study designs. Software used for this course is free, open-source, web-tablet and smart phone-based ([www.glimmpse.SampleSizeShop.org](http://www.glimmpse.SampleSizeShop.org)). This is a three-day intensive and interactive course with online discussion the two weeks following the intensive. Prerequisites: BIOS 6601 and BIOS 6602 or equivalent applied statistic courses.

Grading Basis: Letter Grade

Typically Offered: Spring.

## CLSC 6590 - Navigating the Clinical Research Regulatory Maze (1 Credit)

This is a seminar series covering regulatory requirements and best practices related to FDA audits, billing, collaborative/team research, and distinguishing research from quality improvement projects. Prerequisites: For students with no clinical research experience, it is recommended they take "Getting Started: your introduction to Clinical Research" a 3 hr. lecture as one of their optional lectures, preferably before the course starts or within first 2 months of the course.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

CLSC 6608 - Statistics for the Basic Sciences - CLSC Supplement (1 Credit)

This course provides an overview of epidemiology, logistic regression, and survival analysis, techniques that apply to many areas of clinical research. Coreq: CLSC 6606 (BIOS 6606) Restrictions: Enrollment in CLSC graduate program or permission of the instructor.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 6650 - Guided Research Tutorial - Masters (1-3 Credits)

An independent study course developed by the student and the appropriate faculty member based on the area of study. Students meet regularly with the selected course instructor, the student and course instructor will develop a course plan prior to registration.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 6653 - Key Concepts in Neurodevelopmental Disabilities I (2 Credits)

Course represents part one of two-part interdisciplinary course series focused on systems, options for diagnosis/assessment and alternatives for service provision related to children/youth/young adults with neurodevelopmental and related disabilities and their families to address this population's special health care needs. Prereq: A degree in healthcare profession or related field or instructor consent.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

CLSC 6654 - Key Concepts in Neurodevelopmental Disabilities II (2 Credits)

This course represents part two of a two-part interdisciplinary course series focused on service provision, intervention strategies and service provision related to children/youth/young adults with neurodevelopmental and related disabilities and their families to address this population's special health care needs. Prereq: A degree in health care profession or related field or instructor consent and completion of CLSC 6653.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

CLSC 6657 - Cultural Factors in Healthcare (1 Credit)

Online course will introduce the subject of cultural/social determinants of maternal and child health in the present society, including worldviews on health perspectives (wellness versus illness), and address the impact of emerging demographic changes on systems of care. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

CLSC 6658 - Interdisc. Approach to Promoting Early Parent Child Relationships-Part 1: Theory (2 Credits)

Part one of a two-part course series that will examine the theory and research relevant to the assessment of early parent-child relationships as well as the clinical application for interventions across disciplines that are intended to promote/improve child health outcomes. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

Typically Offered: Fall.

CLSC 6659 - Interdisc. Approach to Promoting Early Parent/Child Relationships- II Measurements (3 Credits)

Part two of a two-part course that will examine research relevant to assessment of early parent/child relationships, identify intervention strategies by analyzing observational findings, as well as evaluate effectiveness of interventions across disciplines intended to promote/improve child health outcomes. Prereq: A degree in health care profession or related field or instructor consent. Completion of CLSC 6658.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 6660 - Team/Consult/Leadership 1 (2 Credits)

Grading Basis: Letter Grade

Typically Offered: Fall, Spring, Summer.

CLSC 6661 - Leadership Dialogues I (2 Credits)

This interdisciplinary leadership course focuses on leadership strategies needed for providing family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: A degree in health care profession or related field or instructor consent.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 6662 - Leadership Dialogues II (1 Credit)

This interdisciplinary leadership course focuses becoming change agents to better provide family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: a degree in health care profession or related field or instructor consent.

CLSC 6661

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

CLSC 6663 - Intervention for Individuals with Developmental Disabilities (3 Credits)

This interdisciplinary course reviews evidence-based practices in intervention for children with autism and other neurodevelopmental disorders, presented through lectures, critical readings of the literature, case discussions, and case presentations. Prereq: Degree in health care profession or related field or consent of instructor.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 6664 - Leadership Dialogues III (1 Credit)

This interdisciplinary leadership course focuses on leadership strategies needed for provided family-centered, culturally competent, community-based services for children with special needs and their families. Prereq: Degree in health care profession or related field or consent of instructor.

Restrictions: Nursing only.

Grading Basis: Letter Grade

Typically Offered: Fall.

CLSC 6665 - Leadership Dialogues IV (1 Credit)

Leadership Dialogues IV builds upon skills addressed in Leadership Dialogues III with the addition of content that integrates critical and systems thinking and ethical decision making with the leadership and team concepts and skills developed in LD III. Prereq: Degree in health care profession or related field or consent of instructor and CLSC 6664.

Restrictions: Nursing only.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 6668 - Screening/Assessment for Children/Youth with Autism/Neurodevelopmental Disabilities (3 Credits)

This interdisciplinary course presents best practices in screening/assessment for autism, focusing on: identification of symptoms of autism; differentiation of autism from other disorders; recognition of symptoms; examination of culture on clinical presentation; and approaches to share observations. prereq: a degree in health care profession or related fields (or consent of instructor).

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 6699 - Masters Research Project: Publishable Paper (1-6 Credits)

During course students working with his/her research mentor and research project committee to plan, execute, write Final Research Project in form of a publishable paper. In addition, students prepare for Final Research Project Examination. This is a capstone course. Prerequisite: Consent of program. BIOS 6601 and BIOS 6602 or BIOS 6611 and BIOS 6612, CLSC 7150, EPID 6630.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

CLSC 6750 - Designing for Dissemination and Sustainability (2 Credits)

This course is one of three that focuses on dissemination and implementation research. This course reviews the organization and financing of interventions for health care systems and public health systems. The role of ethics, evidence and health equity are examined.

Grading Basis: Letter Grade

Typically Offered: Summer.

CLSC 6770 - Implementation Science Grant and Article Funding (2 Credits)

This course provides an in-depth examination of issues in submitting successful grant proposals in Dissemination & Implementation research. The course will build upon good general practices in grant and manuscript preparation and submission.

Grading Basis: Letter Grade

Typically Offered: Summer.

CLSC 6800 - Introduction to Health Information Technology (3 Credits)

Course intended as overview to dynamic environment of healthcare informatics. The goal of course is to prepare healthcare professionals to better utilize/manage the emerging communication technologies. A brief introduction to e-health, telehealth, electronic medical records, telecommunications and bio-informatics is provided.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

CLSC 6820 - Management of Healthcare Information Technology (3 Credits)

This course will provide an introduction to management of information technology in healthcare. A description of information processing, the origin, content and evolution of healthcare information systems and the methodologies deployed to acquire and manage information requirements will be discussed. Crosslisted: HLTH 6072.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

CLSC 6850 - Adv Topics: Dissemination and Implementation Sci (1 Credit)

Provides an overview of intermediate and advanced dissemination and implementation (D&I) science research methods in a small group discussion format. This interactive seminar series structure allows for interdisciplinary scientific dialogue among students at various stages.

Grading Basis: Letter Grade

Repeatable. Max Credits: 2.

Typically Offered: Fall, Spring.

CLSC 6950 - Masters Research Project: Thesis (1-6 Credits)

During this course students plan, execute, and write the Final Research Project in the form of a Masters thesis. In addition, students will prepare for the Final Research Project Examination. This is a capstone course.

Prerequisites: Consent of program, BIOS 6601, BIOS 6602, CLSC 7150, EPID 6630.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 6.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.

CLSC 7101 - Grant Writing I (1 Credit)

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601 and EPID 6630. Course Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

CLSC 7102 - Grant Writing II (1 Credit)

The purpose of this course is to develop and improve your skills in writing successful grant applications and participating in the critique and review process of grants. Prerequisites: BIOS 6601, EPID 6630, CLSC 7101.

Course Restrictions: CLSC students, unless written approval of Course Director.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Spring.

CLSC 7150 - Ethics and Responsible Conduct of Research (1 Credit)

Course provides overview of the field of ethics in clinical research. Topics include historical background, current regulations, IRB requirements on human subjects protection issues. Students will learn how to develop approaches to conduct ethical human subjects research in an optimal manner.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 7202 - Clinical Outcomes and Applications (3 Credits)

This course focuses on research methodologies in clinical care, costs, health systems, policy, and health outcomes, as well as an overview of major issues in clinical outcomes research. Students are provided with both theory and application through case studies.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall.

CLSC 7300 - Scientific Grant Review Process: CCTSI Proposals (1 Credit)

Students will understand and participate in the process of scientific review of human subject research protocols submitted to the University of Colorado Denver Clinical Translational Research Centers at University Hospital and the Children's Hospital. Prereq: BIOS 6601 BIOS 6602 or BIOS 6611 and BIOS 6612.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring.

CLSC 7500 - Practical Application of Molecular & Cell Biology Techniques for Clinical Investig (3 Credits)

Designed to teach clinical investigators basic molecular and cellular biology techniques. Format will be hands-on with lectures designed to illustrate significance and clinical application of techniques. Weekly special topics lectures will cover cutting-edge technologies and their application.

Grading Basis: Letter Grade

A-GRAD Restricted to graduate students only.

Typically Offered: Summer.

CLSC 7650 - Guided Research Tutorial - Doctoral (1-3 Credits)

This is an independent study course developed by student and appropriate faculty member based on area of study. Students meet regularly with selected course instructor. The student and course instructor will develop course plan prior to registration of the course. Prereq: Consent of program approved course plan closed registration.

Grading Basis: Letter Grade

Repeatable. Max Credits: 3.

A-GRAD Restricted to graduate students only.

Typically Offered: Fall, Spring, Summer.

CLSC 7653 - Dissemination and Implementation Research in Health (3 Credits)

Introduces dissemination and implementation (D&I) research and practice in the context of health (i.e. translational research in health).

This is a graduate level course and students should have a working understanding of study designs and statistics.

Grading Basis: Letter Grade

Typically Offered: Fall, Spring.

CLSC 7663 - Context & Adaptation in D&I Research (2 Credits)

This course covers concepts, frameworks, and methods for understanding and assessing context and guiding adaptations as relevant to dissemination and implementation (D&I) health research and practice. Prerequisite - CLSC 7653.

Grading Basis: Letter Grade

Typically Offered: Spring.

CLSC 8990 - Doctoral Thesis (1-10 Credits)

This course involves the student working with his/her research mentor and research project committee develop, design and execute a clinical science doctoral study as well as to write up the project as a thesis.

Prerequisite: Program consent. BIOS 6601 or BIOS 6611, BIOS 6602 or BIOS 6680 and HSMP 6617, CLSC 7150, EPID 6630, BIOS 6648 or EPID 6626 or HSMP 6670. Restrictions: Only CLSC PhD students or collaborative CLSC and CSPH Health Services Research Students.

Grading Basis: Letter Grade with IP

Repeatable. Max Credits: 99.

A-GRAD Restricted to graduate students only.

Additional Information: Report as Full Time.

Typically Offered: Fall, Spring, Summer.