Medical Education Distinction Track

A Manual for Students and Mentors

University of Arizona College of Medicine – Tucson

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Medical Education Distinction Track – A Manual for Students & Mentors

I. Introduction / Overview

The Medical Education Distinction Track helps medical students who are interested in pursuing careers in academic medicine to develop knowledge and experience in both the theory and the practice of education. Successful completion of the track will be recognized on the student's official UA transcript.

This track is designed to strengthen a student's skill in multiple competencies, including Interpersonal & Communication Skills (ICS), Practice-based Learning & Improvement (PLI), Professionalism (PRO), and indirectly, in Medical Knowledge (MK) and Patient Care (PC). This program will provide a student who completes it with a strong background and possible head start in teaching during residency, in selection to training programs that include educational components or tracks, and possibly in future selection to faculty-level positions.

The Medical Education Distinction Track includes both coursework and non-classroom activities and spans the four years of medical school. The program includes required coursework and non-curricular activities, elective coursework, and a capstone project and presentation during the Transition to Residency phase. Students also have the option to maintain a reflective journal related to their experiences in medical education throughout the program.

Each student in the track completes the training for Human Subjects protection by the end of the Preclerkship period or before beginning work on a research project.

Each student in the track is matched with a faculty mentor who meets with the student at least once each semester and advises the student for all 4 years in the program.

II. Goals and Objectives

The goal of the program is for students to learn and apply educational theory, knowledge, and skills relevant to medical education.

The MEDT has specific objectives for students to accomplish in the following areas:

- Teaching and curriculum development
- Assessment of learners
- Mentoring and advising (characteristics of good mentoring, how to actively seek mentors and advisors, responsibilities of mentee, advisee)
- Educational leadership and administration (participation in committees and evaluation of curriculum, accreditation, outreach, advocacy, community work, networking, collaboration)
- Scholarly approach to education (research, publications, reviewer of publications, local, regional and national presentations)

Detailed Goals and Objectives for the Medical Education Distinction Track are in Appendix A.

III. Administration & Faculty

The MEDT is administered by a Director, a Steering Committee, and a Coordinator. The Steering Committee meets four times each year.

Director
    Zoe Cohen, PhD
    zcohen@email.arizona.edu

Coordinator
    Travis Garner; Curricular Affairs
    travisgarner@arizona.edu

Steering Committee
- Richard Amini, MD; Department of Emergency Medicine
- Zoe Cohen, PhD; Department of Physiology
- Rachel Crampton, MD; Department of Pediatrics
- Paul Gordon, MD; Department of Family & Community Medicine
- Patricia Lebensohn, MD; Family & Community Medicine

- Marc Tischler, PhD; Department of Chemistry & Biochemistry

IV.   Mentors

The Director and Steering Committee pair each student with a Mentor in December of Year 1 of medical school. The current list of Mentors is below. A student may nominate someone to serve as a Mentor, but cannot request to be paired with a particular member as his/her Mentor. Nominations for new Mentors must be approved by the Director and Steering Committee.

MEDT Mentors
William Adamas-Rappaport, MD (Surgery)
Nafees Ahmad, PhD (Immunobiology)
Rich Amini, MD (Emergency Medicine)
Conrad Clemens, MD (Pediatrics)
Zoe Cohen, PhD (Physiology)
Janet Corral, PhD (Curricular Affairs)
Herman Gordon, PhD (Cellular & Molecular Medicine)
Paul Gordon, MD (Family & Community Medicine)
Patricia Lebensohn, MD (Family & Community Medicine)
Kadian McIntosh, PhD (College of Education)
Alice Min, MD (Emergency Medicine)
Kevin Moynahan, MD (Medicine)
Mari Ricker, MD (Family & Community Medicine)
Kathy Smith, MD (Psychiatry)
Lisa Stoneking, MD (Emergency Medicine)
Marc Tischler, PhD (Chemistry & Biochemistry)
Todd Vanderah, PhD (Pharmacology)
Andrew Yeager, MD (Pediatrics)

V. Distinction Track Requirements, Phase-by-Phase

Students in the Medical Education Distinction Track are expected to complete the requirements of the Track according to the schedule below in order to remain in good standing in the Track. Individual requests to deviate from this schedule must be submitted in writing to the Director, and will be subject to approval by the Director and the Steering Committee.

Preclerkship
- Apply to program by November 1 of the first semester (fall) (see application in Appendix B).
- Receive Mentor assignment and arrange to meet with Mentor no later than the end of the second semester (spring) to begin planning Capstone Project.
- Complete "Principles and Practice of Medical Education" core course in the second semester (spring).
- Start capstone journal (optional) (see guidelines and suggestions in Appendix C).
- Meet with Mentor in the third semester (fall) to finalize capstone project proposal.
- Submit proposal for Capstone Project by November 1 of the third semester (fall) (see proposal worksheet and form in Appendix D).
- Complete online training for Human Subjects Protection.

Clerkship
- Maintain capstone journal (optional).
- Begin work on the capstone project.
- Provide progress report for capstone project by January 1.

Transition to Residency
- Maintain capstone journal (optional).
- Enroll for 2 units of MED 898 for Capstone Project.
- Complete at least one of the following elective courses ("selective;" details available at website: https://oasis.medicine.arizona.edu/index.html):
- MED 896J: "CRC Facilitation." A minimum of 45 hours is required; 1 unit.
- MED 896C: "Teaching in Medicine: Skills for Teaching Physical Exam." A minimum of 45 hours is required; 1 unit.
- CMM 896: "Gross Anatomy Lab Assistant." A minimum of 45 hours is required; 1 unit.
- MED 896D or 896E: "Teaching in Medicine: Peer Tutoring 1 or 2." A minimum of 45 hours is required; 1 unit.

- FCM 896K: "Planning & Assisting in Teaching Undergraduate class based out of the College of Medicine." Between 45-90 hours is required; 1-2 units.
- Provide progress report for capstone project to steering committee by July 1 and again by December 1.
- Meet with Mentor to discuss and receive feedback on drafts of Capstone Project.
- Complete capstone project:
- Submit final written report on Capstone Project by the first Monday in March.
- Complete oral presentation or poster presentation of Capstone Project during Match Week.

VI. Capstone Journal (optional)

Each student in the Medical Education Distinction Track has the option to maintain a capstone journal for the duration of their time in medical school and to discuss the journal with their MEDT mentor at their regular meetings.

The goal of the capstone journal is to help the student and the mentor become aware of, and thoughtfully explore, the student's ideas and goals in medical education, identify challenges of teaching and possible solutions – in particular learning situations or settings, and promote self-awareness of your knowledge and abilities – both current strengths and those the student would like to develop. This reflective journaling process is designed to help the student develop knowledge and skills to be an effective medical educator.

The scope and format are intentionally flexible and open. The student will record learning experiences they encounter throughout medical school. These should include experiences the student considers to be effective as well as those they considers ineffective. Examples of possible entries would be comments on lecture styles, methods for teaching in didactic sessions or in clerkships and other clinical experiences; notes on seminars or other talks; and tasks, assignments, or other activities. Reflective journals should include journal articles, ideas for the student's capstone project, questions to discuss with the Mentor, etc.

A guide to reflective journaling and some example prompts for reflection are in Appendix C.

VII. Capstone Project

The Capstone Project is a scholarly project that allows the student to explore deeply into a focused question in medical education, think creatively, and demonstrate mastery of key concepts in the field. The scope and format are intentionally kept flexible and open. The student should discuss possible topics for the Capstone Project with their MEDT Mentor. The student must submit a completed Project Proposal Form by October 1 of the student's third semester (fall), for approval by the Director and Steering Committee.

After the student's proposal has been approved, the student should regularly discuss the project with his/her MEDT Mentor, including design or planning and progress. The student must also submit progress reports to the Steering Committee by specific dates in the Clerkship and Transition to Residency phase. The final written report and presentation are due during March of the student's final year.

More information about the Capstone Project is in Appendix E.

VIII. Courses for MEDT

1) The student must complete the "Principles and Practice of Medical Education" course during their second semester.

2) The student must complete at least one of the following elective course during the Transition to Residency Phase ("selective;" details available at website oasis.medicine.arizona.edu/index):
- MED 896J: "CRC Facilitation; 1-2 units.
- MED 896C: "Teaching in Medicine: Skills for Teaching Physical Exam." A minimum of 40 hours is required; 1 unit.
- CMM 896: "Gross Anatomy Lab Assistant." A minimum of 40 hours; 1 unit.
- MED 896D or 896E: "Teaching in Medicine: Peer Tutoring 1 or 2." A minimum of 40 hours is required; 1 unit.
- FCM 896K: "Planning and Assisting in Teaching an Undergraduate Class based out of the College of Medicine." 45-90 hours is required; 1-2 units.

3) The student will enroll for 2 units of MED 898 for the Capstone Project during the Transition to Residency phase.

Medical Education Distinction Track – A Manual for Students & Mentors
Appendix A. Goals and Objectives

The goal of the program is for students to learn and apply educational theory, knowledge, and skills relevant to medical education. The objectives for the track are the following:

I.   Teaching and curriculum development:
   - Apply adult learning theory and principles of cognitive science to teaching medical students and physicians.
   - Identify methodologies to perform needs assessments for learning
   - Use appropriate language to write learning objectives
   - Use principles of adult learning theory and findings from published studies to design and teach:
      o an interactive lecture or a "flipped" lecture on a medical topic.
      o a small-group learning session on a medical topic
      o a bedside session during medical rounds
      o a patient-centered session in the outpatient setting
      o a learning session using medical simulation
   - Use principles of adult learning theory, findings from published studies, and medical knowledge to design a course or curriculum for medical students.

II. Assessment of Learners
   - Use principles of psychometrics to:
      o create a survey of learners that is valid and reliable
      o write multiple-choice exam questions that are valid and reliable
   - Design a system for evaluation of a medical-education program that is efficient, responsive, and effective.
   - Demonstrate understanding of principles of providing effective feedback to learners.

III. Mentoring and Advising (characteristics of good mentoring, how to actively seek mentors and advisors, responsibilities of mentee, advisee)

IV. Educational leadership and administration (participation in committees and evaluation of curriculum, accreditation, outreach, advocacy, community work, networking, collaboration)

V. Scholarly approach to education (Research, publications, reviewer of publications, local, regional and national presentations)
- Identify a current research question in medical education and design a study to address it.

Medical Education Distinction Track – A Manual for Students & Mentors
Appendix B. Application – Submit by November 1 of the first semester

Thank you for your interest in the Medical Education Distinction Track! The MEDT helps medical students who are interested in pursuing careers in academic medicine to develop knowledge and experience in both the theory and the practice of education. Successful completion of the track will be recognized on your official UA transcript.

If you would like to be considered for acceptance into the MEDT, please compile the items below into a single PDF document and submit it to the Director and Coordinator of the MEDT by November 1.

1. Basic Information: name, class year, contact information

2. Letter of Intent: this is a brief letter (one page or less) detailing your interest in medical education and any experience you have in education, medical or otherwise. This letter will help in matching you with your faculty mentor, so please highlight any specific interests you may have in the area of medical education.

3. Resume

Application materials are due by November 1 of the first semester of medical school.

Director: Zoe Cohen, PhD (zcohen@email.arizona.edu); *and*
Coordinator: Travis Garner (travisgarner@arizona.edu)

Medical Education Distinction Track – A Manual for Students & Mentors
Appendix C. Guidelines and Suggestions for Capstone Journal

Students in the Medical Education Distinction Track have the option to maintain a reflective journal for the duration of his/her time in medical school and to discuss the journal with their MEDT mentor at their regular meetings.

Goal

The goal of the Capstone Journal is to help you and your mentor become aware of and thoughtfully explore your ideas and goals in medical education, identify challenges of teaching and possible solutions – in particular learning situations or settings, and promote self-awareness of your knowledge and abilities – both current strengths and those areas you would like to develop. This reflective journaling process aims to help you develop knowledge and skills to be an effective medical educator.

Journal Scope and Format

The scope and format are intentionally flexible and open.

What you will do

You (the student) will record learning experiences you encounter throughout medical school. Include experiences you consider to be effective as well as those you consider ineffective. You might comment on lecture styles, methods for teaching in didactic sessions or in clerkships and other clinical experiences, seminars or other talks, as well as tasks, assignments, or other activities. Reflective journals should include journal articles, ideas for your capstone project, questions to discuss with your mentor, etc.

Prompts for Reflection

The questions below are examples of questions intended to prompt reflective thinking. You are encouraged to identify and address questions that are important to you.

- What do you see as the roles of the learner and teacher in medical education (or in higher education, generally)? How do those roles change with experience or increased knowledge and responsibility?
- What challenges for teaching in clinical settings have you observed? How have those challenges been addressed? Were these approaches helpful or not?
- How have experiences impacted your motivation to become a medical educator?
- What is/are your goal(s) for your own development as a medical educator? What intermediate steps do you think could help you to achieve your goal(s)?

- What kind(s) of feedback helps learners, in general, and you, in particular? What do you see as challenges in giving and receiving feedback – from the learner point of view and from the teacher point of view?
- What teaching methods work are more effective – in which circumstances, and to achieve which goals and purposes in medical education?
- How can we use technology to promote learning? Active learner engagement? Deeper thinking? What are appropriate or optimal uses of technology in medical education?
- What is the purpose of reflective practice in medical education and medical practice?
- What are the benefits and drawbacks of reflective practice in medical education and medical practice?

**Medical Education Distinction Track – A Manual for Students & Mentors
Appendix D. Capstone Project Planning and Proposal Form**

The Project Topic

1. **Please describe, in general terms, the educational issue or problem you would like to address?**

   This issue concerns some aspect of …<mark>Choose an item.</mark>

2. **Please explain how this issue is or could be important to medical education.**

3. **Provide a list of cited literature you are drawing from that supports your project or research question.**

Research Questions

4. **Please describe the research question(s) that you would like to address.**

   Research questions should not be answerable with Yes/No responses. Instead, craft questions that ask about the WHAT, HOW and WHY of the topic.

Methods

DATA COLLECTION: WHAT DATA WILL YOU COLLECT?

5. **I plan to collect the following data or information. Please explain how this data will support your project or answer your research question(s)?**

DATA COLLECTION: HOW WILL YOU COLLECT THE DATA?

6. **Please indicate how you plan to collect data.**

   Think about what is <u>feasible</u> as well as what would help you to answer your research questions. It's important, whenever possible, to use more than one source of data.

   ☐ Observation   ☐ Observation notes
   ☐ Paper survey   ☐ Online survey
   ☐ Interviews   ☐ Focus group
           ☐Audio recording   ☐Video w/audio   ☐ Video w/out audio
   ☐ Existing student data (de-identified only) (Subject to compliance with FERPA, Human Subjects and CoM policies.) You will need to consult with the Deputy Dean for Education, Kevin Moynahan, MD, and/or AMERI Director, Kadian McIntosh, PhD regarding access to student data.

PARTICIPANTS - WHO YOU WILL PARTICIPATE IN THE STUDY?

7. **Please indicate who you plan to recruit to participate in this study.** *Participants would be the people who contribute data, e.g., subject of an interview, focus group, observation.*

☐ Medical students   ☐ Residents

☐ Basic Science Faculty   ☐ Clinician Faculty/Attendings

☐ Affiliate Faculty (community preceptors)   ☐ Education professionals

☐ Patients   ☐ Standardized Patients

☐ Other Click here to enter text.

SITE: WHERE WILL YOU DO THIS STUDY?

8. **Please indicate the type of setting that will be involved in your study and provide a brief description below.**

☐ Classroom or group situation

☐ Bedside teaching (one-on-one or small group)

☐ Other Click here to enter description.

TIMING: WHEN WILL I DO THE STUDY?

9. **Please indicate when you plan to collect the data. Think about whether the data is time sensitive or dependent.**

Feasibility of Study

10. **Do you have access to the potential participants?**

11. **Do you need to learn how to use particular technology or applications to collect or analyze data?**

12. **Will you be able to complete collection and analysis of data by the end of summer or before the beginning of the fourth year?**

13. **If not, what could you study within that period that would enable you to prepare to conduct the study you would prefer to do?**

14. **Any questions or issues you anticipate that might pose challenges for you in conducting this study?**

15. **What resources do you think you will need?**

The purpose of this questionnaire is to help you determine if your project is considered Human Subjects Research. If your project is Human Subjects Research you will need to work with your mentor and the Human Subjects Protection Program (HSPP) to attain IRB approval.

Type of Project

Based upon the aim and methodology of your project, do you think you project is best described as

Program or Curriculum Evaluation (PE/CE)	Program or curriculum evaluation collects context specific data and conducts analysis intended to provide timely feedback that will inform a specific or local program, policy or project or the organization implementing those activities. PE/CE Project Description	☐
Quality Improvement (QI)	Similar to program evaluation, quality improvement is a systematic investigation of a process or project whose results are intended to inform that specific project, process or the organization implementing those activities. QI Project Description	☐

Human Subjects Research	Three key components: 1) designed to contribute to generalizable knowledge (the UA interprets generalizable to mean the results can be applied to the population at large) 2) data is collected through interaction or intervention with an individual and 3) identifiable private information[1] is collected.
	Review UA HSPP Definition of Human Subjects Research
	
	The HSPP determination of research form asks two questions to determine of a project is research:
	
	    1) Is there a systematic investigation, including (but not limited to) a hypothesis, research development, testing, pilot work, and evaluation?
	    2) Is the activity primarily designed to develop NEW knowledge that can be applied broadly to similar groups or conditions?
	
	If the answer is YES to both then an IRB application is required.
		☐

The HSPP describes program evaluation and quality improvement as systematic investigations, "however many are not designed to develop or contribute to generalizable knowledge even though the information may be shared throughout the organization."

A PE/QI project **MAY** meet the definition of Human Subjects Research if it includes certain elements:
- randomization to control and intervention groups
- testing a new treatment
- involvement of researchers with no ongoing commitment to the program or project of interest
- delayed or ineffective feedback of data

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[1] *Private information* includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information) in order for obtaining the information to constitute research involving human subjects.(http://www.hhs.gov/ohrp/regulations-and-policy/regulations/45-cfr-46/#46.201)

- finding from an outside research organization with an interest in using results
- Secondary analysis of identifiable QI or PE data with the intent to develop or contribute to generalizable knowledge

Any project involving medical records, private health information or federal funds must submit and IRB application. If your project proposes to work with any vulnerable populations (e.g., pregnant women, children, prisoners, American Indian/Alaska Native populations) you must submit an IRB application. See 45 CFR 46 Subpart B, C, and D.

If you believe you have any questions about whether or not your project qualifies as PE/CE, QI, or Human Subjects Research please review with your mentor, check resources on the HSPP website and contact the HSPP office.

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Appendix E. Timeline for Capstone Project

MS1 participants

- Meet with mentor no later than the end of the second semester
- Submit one-paragraph description of capstone proposal to Medical Education Distinction Track steering committee by October 1 of the third semester (see proposal worksheet)
- Feedback as needed provided by Medical Education Distinction Track steering committee no later than December 1 of third semester
- Begin work on Capstone Project during Clerkship phase
- Provide progress reports on Capstone Project to Medical Education Distinction Track steering committee by each of the following dates:
    - January 1 of Clerkship year
    - July 1 of Transition to Residency
    - December 1 of Transition to Residency
- Final submission of Capstone Project written report by the first Monday in March of final year
- Oral presentation or Poster Presentation of Capstone Project during Match Week of final year.