

1 Motivation

Course directors (CDs) for large enrollment courses sit at the center of our culture and impact a large population of cadets and faculty; their performance in educating and inspiring as part of our mission is incredibly impactful and we need them to be awesome. Historically, we have offered an “FDW V” for rising CDs in the spring of their second year, consisting of 3-4 hours of discussion and associated exercises with senior faculty.

Moving forward, the department will build on this and deliberately invest additional time and resources in CD development. This document details how we will **cultivate** our CDs in a two-year framework with the following goals: (a) developing and improving disciplinary expertise, (b) reinforcing institutional, programmatic, and course goals through Student Learning Outcomes (SLOs) to focus and improve assessment efforts, and (c) integrating and not concatenating SLOs to include ethical content.

All 1st year junior military faculty members begin their D/Math tour with our summer Faculty Development Workshop (FDW). This is OUR opportunity as a Department to on-board new Mathletes, and it is the main effort each summer. The three key tasks for FDW are (implies directed at new faculty): 1) *Integrate into USMA*, 2) *Enculturate to D/Math*, and 3) *Learn and practice teaching*. The emphasis during the first year is on mastering **teaching** while exploring the other opportunities for cadet advising, service, and scholarship.

Large enrollment courses include MA103, MA104, MA153, MA204, MA205, MA206/56, and MA255, but we also include our research courses given the volume of cadets and advisors MA491/98/99. These courses typically involve up to 900 cadets and are supported by up to 25 instructors, ranging from assistant to full professor. Large enrollment courses in this department are led by junior military faculty with an MS degree. This provides a developmental opportunity in-line with future military staff work they may encounter, and enables our civilian faculty to teach in the core while sometimes leading 300/400 level courses. Faculty are selected to be CDs by the end of their first year, which starts a two-year effort in which the faculty member serves as assistant course director (ACD) during their second year prior to assuming the CD role their third year (with some timing exceptions).

In this context, “cultivate” means to develop, foster, or nurture a research mindset within CDs over time. It implies a deliberate and sustained effort to enhance their skills, knowledge, and overall effectiveness in their roles. The term suggests a careful and intentional process aimed at bringing out the best in the CDs through training, support, and development opportunities.

2 A Research Mindset to Facilitate Assessment

Running a large enrollment course aligns with steps we use in advising cadet research. We should generally follow such a framework in assessment of our SLOs. I need you to adopt a **‘research mindset’** in doing this. I see the following steps applying:

a. Define Objectives and Conduct Literature Review

- a.1. Define the specific SLOs to be assessed and research questions.
- a.2. Conduct a literature review to understand existing methods and gaps.

b. Develop Research Plan

- b.1. Determine experimental design and methodology, i.e., use provided Course Design and Analysis Report framework.
- b.2. Plan data collection methods and instruments (e.g., formative vs. summative assessments, surveys).

b.3. Obtain necessary approvals especially from the **Human Research Protections Program**.

c. **Prepare and Conduct Experiment**

- c.1. Prepare materials and train course instructors.
- c.2. Implement the experimental plan and collect data.

d. **Analyze and Interpret Data**

- d.1. Process and analyze the collected data.
- d.2. Compare findings with the original objectives and research questions.
- d.3. Discuss implications and limitations.

e. **Report and Share Findings**

- e.1. Write the Course Design and Analysis Report with clear structure and style.
- e.2. Review, revise, and seek feedback.
- e.3. Present findings to the academic community and publish the research ([encouraged](#)).

Note: the Course Design and Analysis Report framework is provided directly to ACDs/CDs by PDs.

3 The 2-Year Course Director Model

3.1 Utilization Tour, Year 2 of 3

During the second year, junior military faculty members serve as ACDs alongside the CD in a two-officer leadership team. ACDs focus on completing steps **a** of the research framework, while CDs (as described in the next section) address steps **b** through **e**. The department kick-starts the ACD developmental process by taking them to MAA's Mathfest (before the start of the fall semester). The goal of the conference attendance is not only to make contacts by introducing ACDs to industry and academic peers but also to help them deeply consider their course by identifying best and current practices to identify gaps and/or opportunities in the field.

ACDs have the fall semester to complete step **a** by writing a literature review focused on improving their course. Generally, the literature review should address the SLOs and the assessment of SLOs, as well as successful pedagogical practices and/or gaps in the research ripe for exploration. Consideration of other service academies and coordinating with respective course leaders is encouraged as it will only provide further awareness. The literature review is due to P6 no later than the end of January. References that might interest you are listed at the end of this document in the bibliography. Literature reviews do not need to be reconstituted from scratch each year, rather updated or focused specifically on something beneficial to the course. For example, if the course already has a current and relevant review of things previously identified, then ACDs are free to investigate things such as rubric development, comparison of technologies, and/or pedagogical techniques associated with the use of AI and/or machine learning. **The goal is for the ACD to demonstrate their knowledge to lead the course, in writing.**

Submitting and discussing the literature review with the department head is a significant developmental opportunity for the ACD. It facilitates focused dialogue between them in shaping future course SLOs and assessments. The department head will work with the ACD to refine the document with an eye toward publication.

At the end of the academic year, the department conducts our CD Academy, a three-day course during grad week. Here, department leaders help educate ACDs on steps **b** and **c** by framing institutional goals, posing ethical considerations, and sharing accreditation details. Departing CDs also share their lessons learned with all ACDs. The CD Academy serves as the official transfer of responsibility between ACD and CD.

3.2 Utilization Tour, Year 3 of 3

Following the CD Academy, CDs should begin drafting their Course Design and Analysis Report (aligned with steps **b** through **c**) with the goal of presenting it to all course instructors during REORGY week. Additionally, CDs should strive to have all WPRs (summative assessments) completed by the first lesson to better focus instructors on their pedagogical efforts for the semester.

At the end of the fall semester, CDs will finalize steps **d** and **e** by completing their Course Design and Analysis Report and submitting it to the department head no later than January 30 (or June 30 for spring courses). As a result of adopting a research mindset in assessing their course, we have positioned **CDs nicely to pursue scholarship opportunities such as presenting their course research at conferences and/or publishing in peer-reviewed journals if desired.** They should also prepare to hand off their research efforts to the next ACD and share their lessons learned with all course ACDs in the CD Academy.

References

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