

NBME Synthesis Exam Study

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Introduction

Oakland University William Beaumont School of Medicine (OUWB) developed “Synthesis Exams” that utilize the National Board of Medical Examiners (NBME) Customized Assessment Services question bank. This initiative creates exams that cover multiple disciplines taught throughout the preclinical years. These types of assessments may serve as valuable opportunities for students at schools that utilize professor-written preclinical exams, allowing them to apply their knowledge to integrative NBME-style questions well before they sit for Step 1. OUWB, a school that exclusively uses professor-written exams for its preclinical courses, offered its first Synthesis Exam to M2 students (Class of 2026) at the **end** of their first semester of the second year (Fall 2023). A second Synthesis Exam was administered to the next graduating class (Class of 2027) at the **beginning** of their second year and a third Synthesis exam was offered in the **middle** of the second year (Winter 2025).

Aims and Objectives

1. Describe students’ self-perceived helpfulness of the Synthesis Exam on STEP 1 preparation.
2. Identify strategies to improve the preclinical curriculum and the NBME Synthesis Exam to better prepare future students for the STEP 1 examination.

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Methods

- In **Winter 2024, 106 of 123 M2 students** opted to take the optional 100-question Synthesis Exam, which covered content taught throughout the first **3 of 4 preclinical semesters**.
- We administered a **5-question survey** to assess students’ perceptions of how helpful they felt the exam was for their STEP 1 preparation. This survey was taken **after** students completed the STEP 1 exam.
- After receiving feedback to offer this exam more regularly throughout the preclinical years, the NBME Synthesis Exam was offered to the Class of 2027 at the beginning of their M2 year.
- In **Fall 2024, 98 out of 123 M2 students** opted to take this optional 100-question Synthesis Exam which covered content taught throughout the **M1 year**.
- After the exam was delivered, we administered a **5-question survey** to assess students’ perceptions of how helpful they felt the exam was for their STEP 1 preparation. This survey was taken **before** students completed the STEP 1 exam.

Results

The Class of 2026 rated the helpfulness of the NBME Synthesis exam **6.18 out of 10 (n=51)** after completing the STEP 1 examination. The Class of 2027 rated the helpfulness of the NBME Synthesis exam **5.78 out of 10 (n=33)** without yet completing the STEP 1 examination. Narrative feedback about the Synthesis Exam included multiple themes (**Tables 1 and 2**). For positives, students appreciated frequent and early opportunities to answer NBME-style questions within the curriculum. For improvements, students would like a more robust score report to help guide future studying. A correlation analysis then compared students’ anonymous raw scores on the optional NBME Synthesis Exams and the mandatory and optional Comprehensive Basic Science Exams (CBSE) offered by OUWB at the end of the M2 year.

Figure 1. Line of Best Fit for the M2 Synthesis Exam Percent Correct vs. Mandatory CBSE EPC

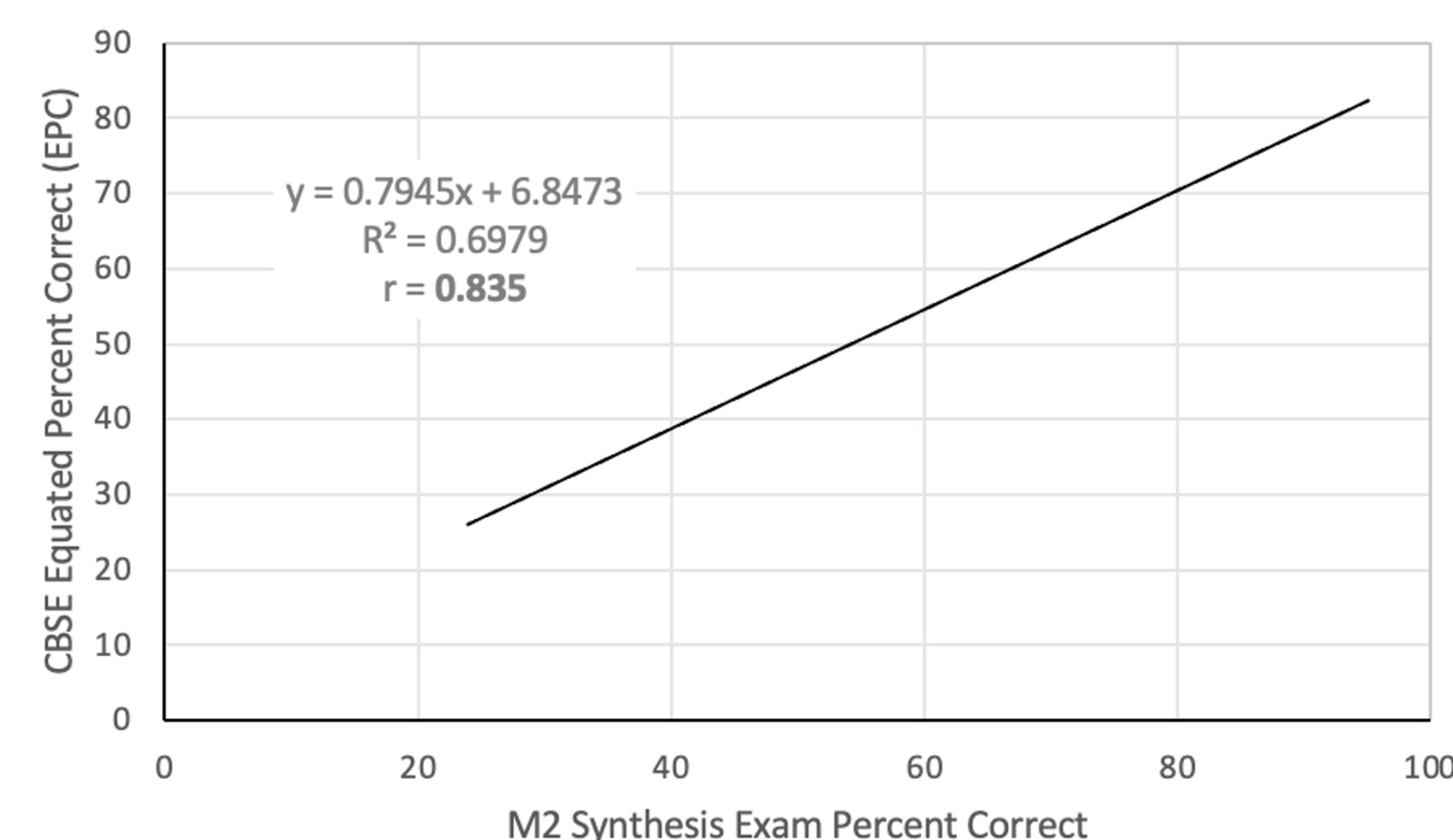


Table 1: Positives

CO 2026	CO 2027
Good practice with NBME content	Exposure to NBME content
Baseline score	Motivation
Testing environment	Mix of questions from different subjects

Table 2: Improvements

CO 2026	CO 2027
Improved score report	Improved score report
Different style than STEP 1 questions which are longer	Felt similar to professor written questions
Offer earlier and more often	More important STEP 1 concepts

Conclusions

Our data shows a **significant correlation of 0.835 ($p < 0.001$)** between the first M2 synthesis exam and the mandatory M2 CBSE exam (**Figure 1**) and a **significant correlation of 0.780 ($p < 0.001$)** between the synthesis exam and the optional M2 CBSE exam.

Discussion

Our data show that students felt the NBME Synthesis Exam was beneficial for their STEP 1 preparation. The strong correlation between the NBME Synthesis Exam and the CBSE exams demonstrates that students can use NBME Synthesis exams as a tool to identify weak concepts prior to their STEP 1 exam preparation. To address a number of frequently asked questions regarding the development and purpose of the NBME Synthesis Exams, our team created an informational sheet. This document outlines what the Synthesis Exam entails, how the questions are selected, and how students can best use the score report. Going forward, this FAQ sheet will be sent out to students along with the exam sign-up. We hope that this document will encourage students to sit for the exam. We also plan on partnering with the OUWB Academic Success Team to host panels that allow senior students who have taken the Synthesis exam to share their experience with students who have not. The goal of the NBME Synthesis exams is to supplement the CBSE exams and third party question banks (UWorld, AMBOSS) that students use in their preparation for STEP 1.