

Disciplinary Core Concepts – a Means to Connect Diverse Student Cohorts in an Introductory Physiology Unit

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Background/context. Students in an introductory physiology unit (BMS107) at Murdoch University have ATARs between 70 and > 95, with diverse career aspirations (clinical/non-clinical, animal/human). This diversity has historically produced challenges in engaging, and creating valuable learning experience for, each student.

The initiative/practice. Michael¹ and colleagues have led the international physiology education community to develop Core Concepts in Physiology. Core Concepts emerged in response to widespread concerns that expanding detail in science units was distracting students from developing an understanding of major principles. Despite widespread support for the Core Concepts internationally, physiology educators have not yet provided models that effectively incorporate Core Concepts into undergraduate physiology units. The presentation will showcase how BMS107 was re-created to promote student mastery of Core Concepts. Six core concepts were selected for their suitability in an introductory physiology unit and their ability to scaffold the learning of students going on to complete more advanced physiology units. Strategies to be documented and discussed include structuring a unit around core concepts, convincing students of their value and iteratively signposting and engaging students with core concepts in teaching of major body systems. Assessments were developed to provide ongoing measurement of basic core concept understanding and an to demonstrate higher-level mastery and integration of core concepts, in an open-ended poster assessment. All innovations were designed to be feasible and valuable in an online-only context. Sufficient detail will be provided to enable educators to apply these strategies in their own teaching context.

Methods of evaluative data collection and analysis. The impact of this approach on student learning (using student work samples), experience (from student surveys) and performance metrics (unit results). Challenges that emerged for staff and students and the impact on staff satisfaction with unit content will be considered.

Evidence of outcomes and effectiveness. Results suggest that, while challenging for students, introducing a strong core concepts emphasis to introductory physiology units provides a “disciplinary passport”, better preparing students to progress in many different directions in their courses.

Interaction: A 20 minute presentation of the approach above will be followed by semi-structured small group discussion about challenges, opportunities, and approaches to implementation of core concepts into undergraduate physiology teaching.

References.

Michael, J., Cliff, W., McFarland, J., Modell, H., & Wright, A. (2017). What are the core concepts of physiology?. In *The core concepts of physiology* (pp. 27-36). Springer, New York, NY.