

Keeping Analytical Chemistry Training Up-to-Date

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INTRODUCTION

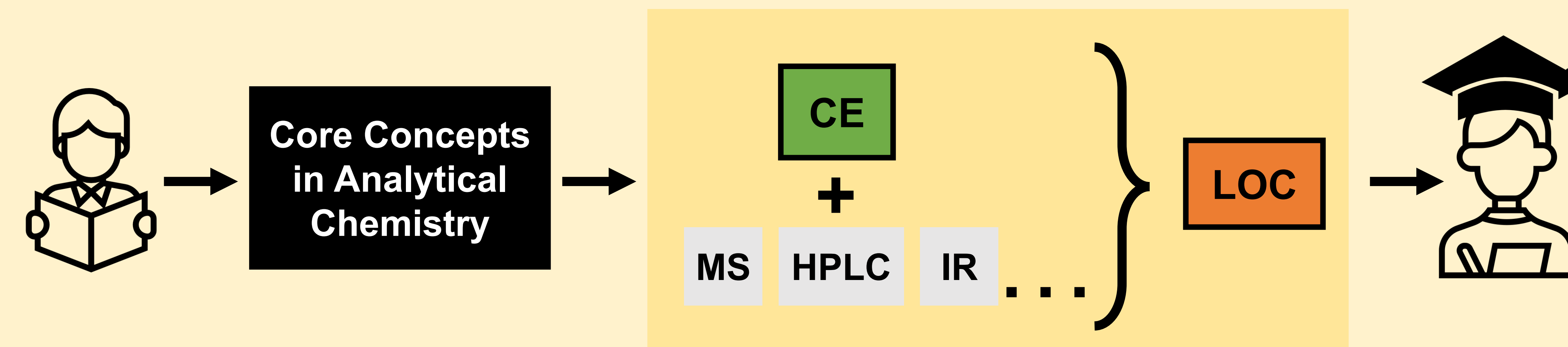
The undergraduate analytical chemistry curriculum have remained largely unchanged for the past 15 years, even as science, industry, and sustainability demands have advanced. Instructors now face the difficult task of choosing which topics to teach, balancing breadth, depth, and modern relevance.

OUR PROPOSAL

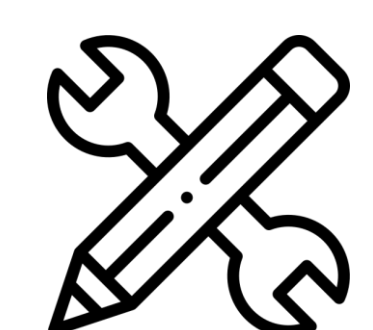
We propose increased inclusion of topics in **capillary electrophoresis (CE)** and **lab-on-a-chip (LOC)** technologies in more analytical chemistry curricula.

Case study – CM4242 (Advanced Analytical Techniques)

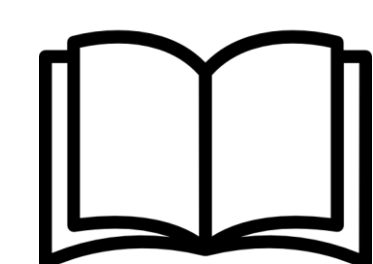
- Fourth-year undergraduate elective from NUS
- Covers topics in CE and LOC
- Features hands-on experiences with CE instrumentation and components.



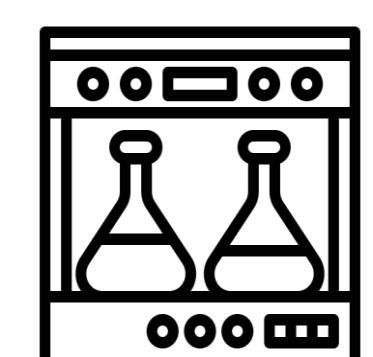
PEDAGOGICAL CONSIDERATIONS



Equip students with future-ready skills



Reinforce foundational core concepts



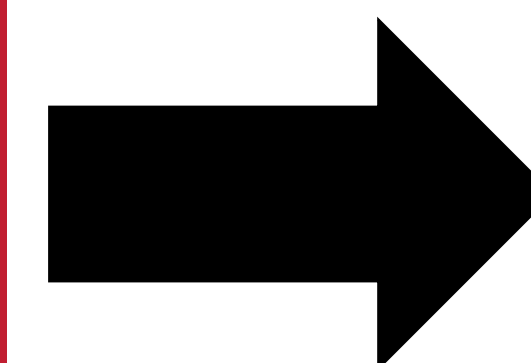
Access to instruments for hands-on learning

4 QUALITY EDUCATION



Stronger classroom learning

- Reinforces core concepts
- Accessible cost- and size-friendly options for classroom demonstrations and hands-on learning

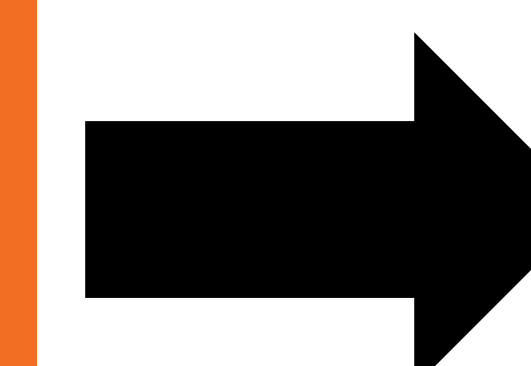


9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Bridging academia and industry

- Introduces students to cutting-edge technologies used in various industries and areas of research fields



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Sustainable science

- Low sample & reagent use
- Promotes sustainable approaches in analytical chemistry education and research.

Reference:

(1) Fung, F. M., Widyantoro, C., & Li, S. F. Y. (2024). Keeping Analytical Chemistry Training Up-to-Date. *Analytical Chemistry*, 96(18), 6863-6869