

# **Key Outcomes for Instructors**

How do you know if your courses are effective?



If they include and are continually improving in the following five areas, you're in pretty good shape.

- Clear & Transparent Course Structure
  Effective Lab Solutions
  Enhanced Student Support
  Streamlined Workload & Actionable Feedback
  - Improved Student Engagement

# **1. Clear & Transparent Course Structure**

- Provide a Detailed Syllabus: Outline learning outcomes, assessment criteria, and a timeline of activities.
- **Leverage Your LMS:** Create a clear and consistent module structure (e.g., "Week 1: Introduction to Lab Techniques").
- Break Down Learning Outcomes: Translate high-level learning outcomes into actionable steps. For example, "Mastering titration techniques" could be broken into smaller goals like understanding the theory, watching a demo, and completing a virtual lab.
- Provide Rubrics and Examples: Share grading rubrics for assessments and examples of successful student work to clarify expectations.

# 2. Effective Lab Solutions

Leverage Hands-on Labs

- Choose labs that align directly with course goals and mimic in-person lab experiences.
- **Incorporate Hands-On Kits:** Use ready-made lab kits for experiments students can safely perform at home. Include detailed instructions and videos to guide them through the process.
- Integrate Multimedia: Supplement labs with videos, interactive quizzes, and discussion prompts to reinforce concepts and ensure engagement.
- **Supplement with Virtual Labs:** Use virtual lab simulations that allow students to experiment safely and repeatedly to build skills.

## 3. Enhanced Student Support

#### **Establish Regular Communication:**

- Send weekly announcements summarizing what students should focus on and upcoming deadlines.
- Use discussion forums for peer interaction and instructor Q&A.

#### **Offer Flexible Office Hours:**

- Schedule virtual office hours at varying times to accommodate diverse schedules and time zones.
- Record tutorials or office-hour takeaways for students who cannot attend.
- **Provide Scaffolding:** 
  - Create "pre-lab" activities like concept checks or readings to prepare students for lab work and "post-lab" assignments to analyze results and reflect on learning.

# 4. Streamlined Workload & Actionable Feedback

#### Use Pre-Built or Integrated Resources:

- Adopt pre-designed lab exercises, instructional videos, and integrated text (OpenStax) to save time.
- Curate open educational resources (OER) for supplementary learning.

#### Automate Routine Tasks:

- Utilize auto-graded quizzes or assignments for immediate feedback.
- Use analytics to quickly identify struggling students and provide targeted interventions.

#### **Collect Feedback:**

- Collaborate with peers, join communities of practice or share resources with other instructors teaching similar courses.
- Conduct pre, during, and post surveys to see what students say is most challenging so you can provide additional layers of support.

### 5. Improved Student Engagement

#### **Incorporate Interactive Elements:**

- Use polls, breakout rooms, and collaborative tools to simulate group work during labs.
- Gamify lab tasks with challenges or badges to boost motivation.

#### **Encourage Reflection and Discussion:**

• Include reflective journals or discussion boards where students analyze their lab results and share insights.

#### Celebrate Successes:

• Acknowledge student achievements with virtual shoutouts or badges for milestones like completing a challenging lab.

By combining these practices, you can create a well-structured, engaging, and supportive online lab environment that helps students achieve learning outcomes effectively while reducing instructor workload.

