BACE Biotechnology Aptitude and Competency Exam

AY 25-26

BPEC

PRACTICE EXAM COURSE GUIDE

The BACE Practice Exam Course is a complimentary resource available through UF e-Learning, expertly crafted by Biotility to support BACE candidates in their preparation for both the Knowledge and Practical portions of the Biotechnology Aptitude and Competency Exam (BACE). We highly recommend that all personnel involved in guiding BACE candidates take the time to thoroughly review the content within the BACE Practice Exam Course. This review will enable you to effectively integrate this valuable tool into your preparation strategies, ensuring that candidates are well-equipped for success.

NOTICE: Please be aware that the scores obtained from practice exams are not validated for use in high-stakes decision-making. These scores are intended solely for the Exam Site's use in planning and guiding instruction, helping to identify areas where candidates may need additional support.

Course Access and Management

Within two (2) weeks of completing the Exam Site Registration Process, Exam Sites will receive a unique BACE Practice Exam Enrollment Link to distribute to their users. Exam Site personnel (see Authorizing Teaching Assistants below for TA access) and candidates should use the same link to gain access to the BACE Practice Exam Course.

For a step-by-step description of the course enrollment process for new and existing users, please refer to Accessing UF e-Learning. The Practice Exam Course Enrollment Link may NOT be posted in a public area. It may be emailed directly to users or posted on a non-public class page.

User Role Hierarchy

Initially, all users who enroll are designated as a ***Student***. A user must be designated as a ***Teaching Assistant*** (TA) to access Practice Exam Results and other student work products.

- ***Student*** - can read content, participate in course activities, submit assignments, and take quizzes.
- ***Teaching Assistant*** - control over all aspects of the course. Can create, revise, and delete content, and can interact with and grade students.

Authorizing Teaching Assistants

Exam Sites may have multiple individuals in the Teaching Assistant role. Exam Site Administrators designate Teaching Assistants on the Exam Site Registration Form or post-registration by emailing BACE@research.ufl.edu.

Student Data Security Notice

Biotility is committed to protecting candidate data and therefore users may NOT share account usernames or passwords with any other individual. Exam Site Administrators are responsible for notifying Biotility if a Teaching Assistant's access needs to be revoked, for example if an employee leaves your institution or company.

Take the following actions to authorize Teaching Assistants.

1. Distribute the Practice Exam Enrollment link to the user.
2. Have the user enroll using the link provided by the Site Administrator.
3. Site Administrator should then email BACE@research.ufl.edu and request TA access for them.

Course Content

The BACE Practice Exam Course provides candidates with a detailed review of the exam experience and includes confidence activities, multiple practice exams, and additional study resources. The second portion of the course provides career development activities and resources, which may help candidates enter the industrial biotechnology workforce.

Publishing Content

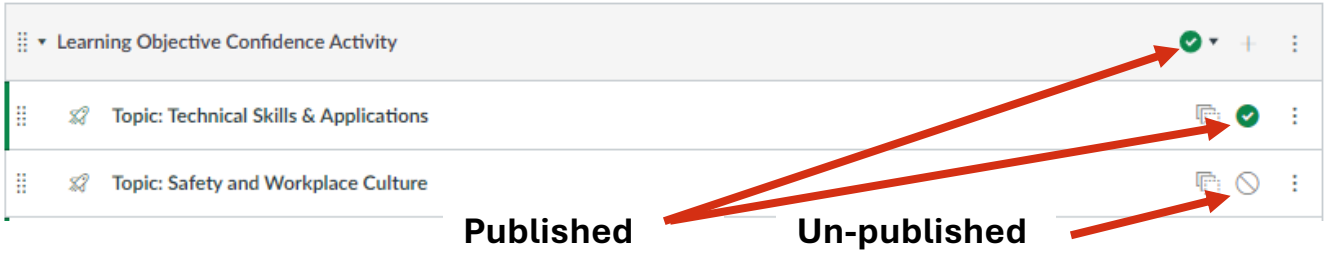
By default, all content in the BACE Practice Exam Course is published and immediately available to enrolled users. Users designated as Teaching Assistants may hide content (temporarily or permanently) by un-publishing an entire module or part of a module.

To un-publish content:

1. Look for the green check mark in the right-hand corner of the item's ribbon.
2. Click the check mark to un-publish and hide the content from all Student users.

To re-publish content:

1. Look for the no symbol in the right-hand corner of the item's ribbon.
2. Click the no symbol to re-publish content for all Student users.



BACE Practice Exam Course Modules

The BACE Practice Exam Course is crafted to help educators prepare their students for the Biotechnology Aptitude and Competency Exam (BACE). The course features six targeted modules that focus on key areas, from self-assessment and math skills to industry practices, ensuring students are well-prepared for both the Knowledge and Practical portions of the exam.

A highlight is the Competency Challenge module, where students can earn digital badges for demonstrating proficiency in BACE categories. These badges can help motivate students while adding a fun, engaging element to the preparation process.

By integrating these modules into your teaching strategy, you can empower your students to excel on the exam and in their future careers. The content of each module is described for educators below.

MODULE 1: Proficiency Plotter – Empowering Students to Navigate Their Biotech Learning Journey

The **Proficiency Plotter** module is designed to help students self-assess their understanding of key concepts covered in the BACE. Through a series of eight (8) BACE category surveys and quizzes, students will evaluate their familiarity with various subcategories, creating a personalized map of their strengths and areas that may require additional focus.

Upon completing the module, students receive a comprehensive report that details their self-assessed proficiency across the topics. This report is also available to you, their educator, providing valuable insights that can be used to tailor your instruction to better meet each student's needs.

The **Proficiency Plotter** serves as an essential learning confidence activity. It not only engages students in reflective practice, fostering self-awareness, but it also empowers them by involving them in their own learning process. By identifying areas where they feel less confident, students are better prepared to focus their efforts, and you are equipped with the information needed to offer targeted support and guidance.

MODULE 2: Regulatory Compliance and Quality Systems Review – Bridging the Knowledge Gap for Your Students

The **Regulatory Compliance and Quality Systems Review** module provides crucial content that is often not included in standard biotech curricula but is essential for the BACE exam. Current Good Manufacturing Practices (CGMP) are fundamental to ensuring the quality and safety of biotech products, making this knowledge critical for students' success on the exam and in their future careers.

Recognizing this gap, Biotility has developed a comprehensive review to equip your students with the understanding they need. This module covers key regulations, Good Documentation Practices, and insights into the structure and operations of biotech companies.

As an educator, you have the option to incorporate the **Regulatory Compliance and Quality Systems Review** into your classroom instruction, providing your students with additional support as they engage with this important content. Encouraging them to fully utilize this module will ensure they are well-prepared not only for the BACE exam but also for the demands of the biotechnology industry.

MODULE 3: Trial Run – Practice, Learn, and Prepare for the Challenge

The **Trial Run** module provides a valuable opportunity for students to engage in realistic practice before the Competency Challenge or the actual BACE exam. This module is designed to help students test their biotech knowledge, refine their skills, and build the confidence needed for success.

The Online Practice Exams within this module closely mirror the content and format of the actual BACE exam, offering an accurate representation of what students will encounter. Students can take these practice exams multiple times, allowing them to familiarize themselves with the material and assess their understanding.

After each quiz, students receive immediate feedback, with correct answers revealed to aid in their learning. As an educator, you'll have access to your students' results, enabling you to identify areas where they may need additional support. This insight allows you to offer targeted instruction and guidance, ensuring that each student is thoroughly prepared for the exam and ready to meet the challenges ahead.

MODULE 4: Number Crunch – Strengthening Math Skills for the BACE

The **Number Crunch** module is designed to help your students refine their mathematical skills, which are essential for success on the BACE exam. This module provides focused practice on key mathematical concepts that many students may find challenging, such as scientific notation, significant digits, decimals, serial dilutions, solution preparation, conversions, and more.

By incorporating the **Number Crunch** module into your teaching strategy, you can ensure that your students have the additional support they need to master these critical areas. The module's practice quizzes allow students to reinforce their understanding and build confidence in their math skills. The feedback they receive after each quiz will help you identify areas where they may need further review, enabling you to offer targeted instruction to address any gaps.

In addition to the practice activities, this module now includes a video resource, **Applied Math in Biotechnology – What You Need to Know**. This video provides a clear and accessible review of the mathematical concepts covered in the BACE Applied Mathematics category, including scientific notation, significant digits, metric conversions, dilutions, solution preparation, and basic statistics. By walking

through real-world biotechnology examples, the video helps students connect abstract math skills to practical applications in the lab.

Encouraging your students to engage with the **Number Crunch** module will not only enhance their math proficiency but also boost their overall readiness for the BACE exam, giving them the tools they need to excel. For additional educator resources on this subject please refer to the Additional Content for Educators section in this document.

MODULE 5: Competency Challenge & Badges – Empowering Students to Excel

The **Competency Challenge** module is the final step in your students' preparation for the BACE exam. This module offers them a realistic practice experience, helping to solidify the biotech knowledge and skills they've developed. It also serves as a powerful tool for both assessment and motivation.

In this module, students will complete eight (8) BACE category quizzes that closely mirror the content and complexity of the actual exam. As they progress, they have the opportunity to earn digital badges for passing these quizzes—an exciting way to recognize their achievements and build confidence. These badges can be shared on resumes and professional profiles, giving students a tangible sense of accomplishment.

You can leverage the badging system to create enthusiasm around exam preparation, using it to highlight students' successes and motivate them to reach their full potential. While the badges celebrate their strengths, the **Competency Challenge** also provides valuable insights into areas where students may benefit from further review. By encouraging them to carefully analyze their results, you can help them fine-tune their preparation, ensuring they are fully ready to excel on the BACE exam.

MODULE 6: Stepping into the Biotech Workforce –Preparing Your Students for Their Careers

The **Stepping into the Biotech Workforce** module is an invaluable resource designed to help your students make the transition from your class to a professional career in biotechnology. While this content is not covered on the BACE exam, it offers practical tools and guidance that can ease the anxiety many candidates feel about entering the job market.

In this module, students will learn how to create a professional LinkedIn profile that highlights their skills and achievements, discover effective networking strategies to connect with industry professionals, and access resources to prepare them for interviews and improve their communication skills. Additionally, the module provides guidance on crafting compelling resumes, cover letters, and other essential job application documents.

By encouraging your students to engage with the **Stepping into the Biotech Workforce** module, you'll help them build the confidence they need to approach the job application process with less anxiety and more assurance, ensuring they are well-equipped to succeed in the biotech industry.

Practice Exam Results

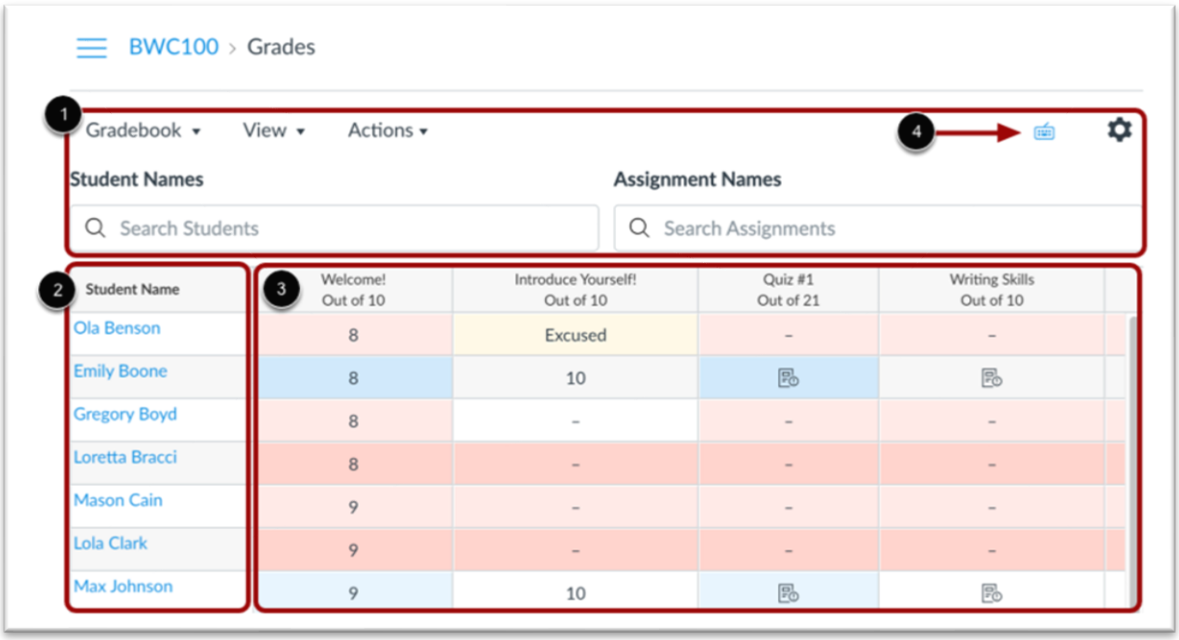
Candidate results for the online Practice Exam are accessed within the BACE Practice Exam Course in UF e-Learning. Within the course, individuals who have been designated as Teaching Assistants by the Site Administrator have access to multiple reports for their Exam Site. These reports are located in either the Gradebook or the Quiz Statistics.

Gradebook Report

The Gradebook provides a quick way to view Practice Exam results for all candidates. To view the Gradebook:

1. Navigate to the UF e-Learning Login page.
2. Select **External ID**.
3. Sign in with the social account you enrolled through.
4. Open the BACE Practice Exam Course.
5. Using the **Courses** navigation menu, select **Grades**.

The Gradebook includes global sorting options and settings [1] you can use to organize your gradebook, student data [2] and assignment data [3]. To view the **Keyboard Shortcuts** menu, select the **Keyboard** icon [4] or select **Shift+Question mark**.



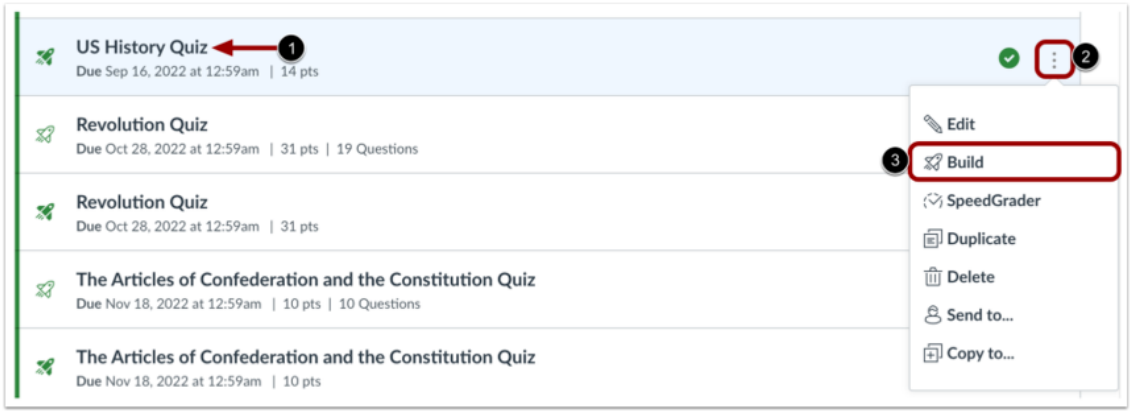
Please visit the Canvas Instructor Guide for a full walk through of all Gradebook features including menus, viewing and filter options, search options, and settings.

Quiz Statistics

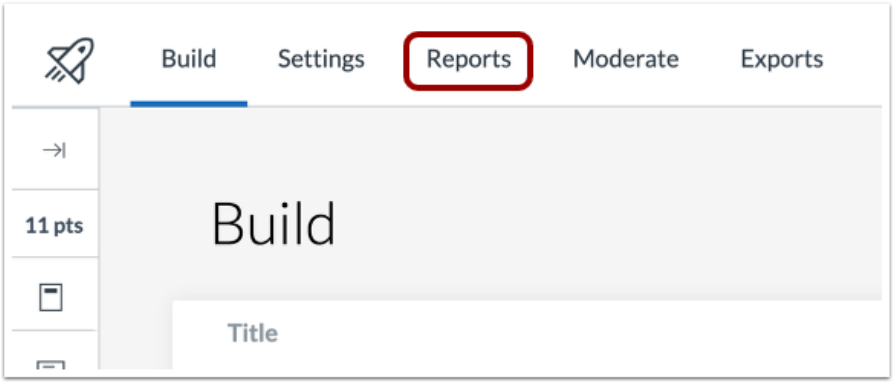
To view the Quiz Statistics,

1. Navigate to the UF e-Learning Login page.
2. Select **External ID**.

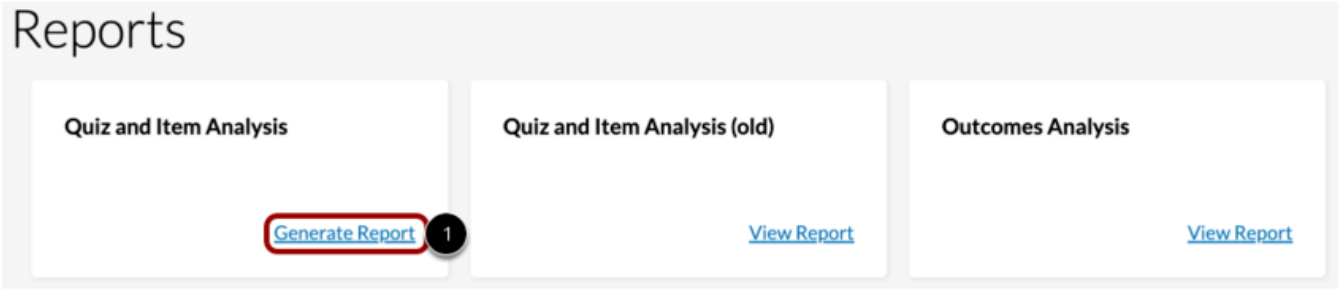
3. Sign in with the social account you enrolled through.
4. Open the BACE Practice Exam Course.
5. Using the **Course** navigation menu, select **Quizzes**.
6. Choose a quiz [1], then go to the **Options** menu [2] and select **Build** [3].



7. Select **Reports**.



8. Select **Generate Report** under Quiz and Item Analysis.



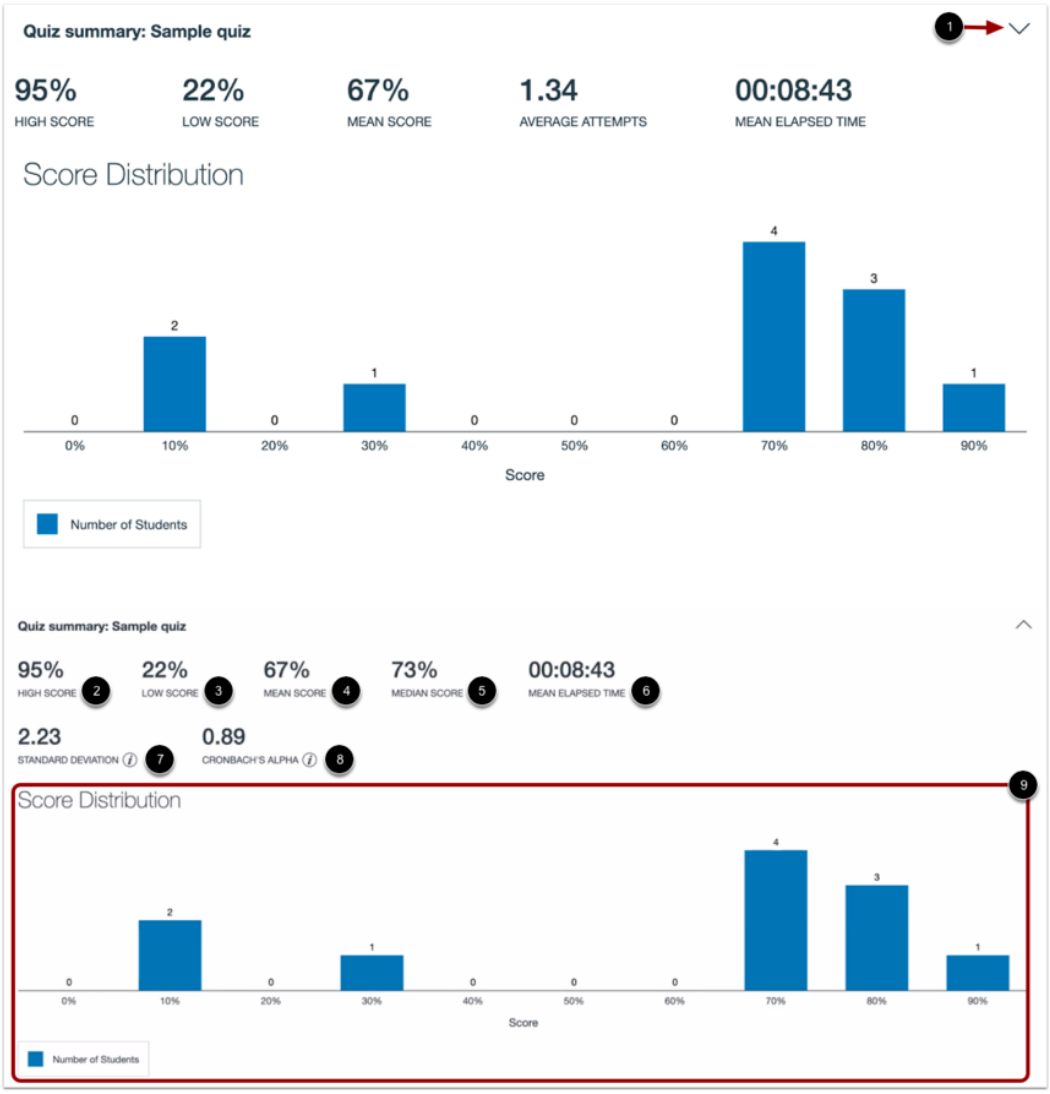
Note: Quiz Statistics will not be available until at least three candidates have completed the quiz.

Quiz Analysis Report

The Quiz Analysis includes statistics for overall quiz scores. To view Quiz Analysis details, click the Expand icon [1]. The following statistics are available:

- **High Score** [2]: displays highest percentage score

- **Low Score** [3]: displays lowest percentage score
- **Mean Score** [4]: displays average percentage score
- **Median Score** [5]: displays median percentage score
- **Mean Elapsed Time** [6]: displays average time to complete the quiz
- **Standard Deviation** [7]: represents the amount of variation from the mean score in percentage
- **Cronbach's Alpha** [8]: is an internal consistency measure that estimates the reliability of a quiz
- **Score Distribution Chart** [9]: represents the distribution of earned scores for the quiz

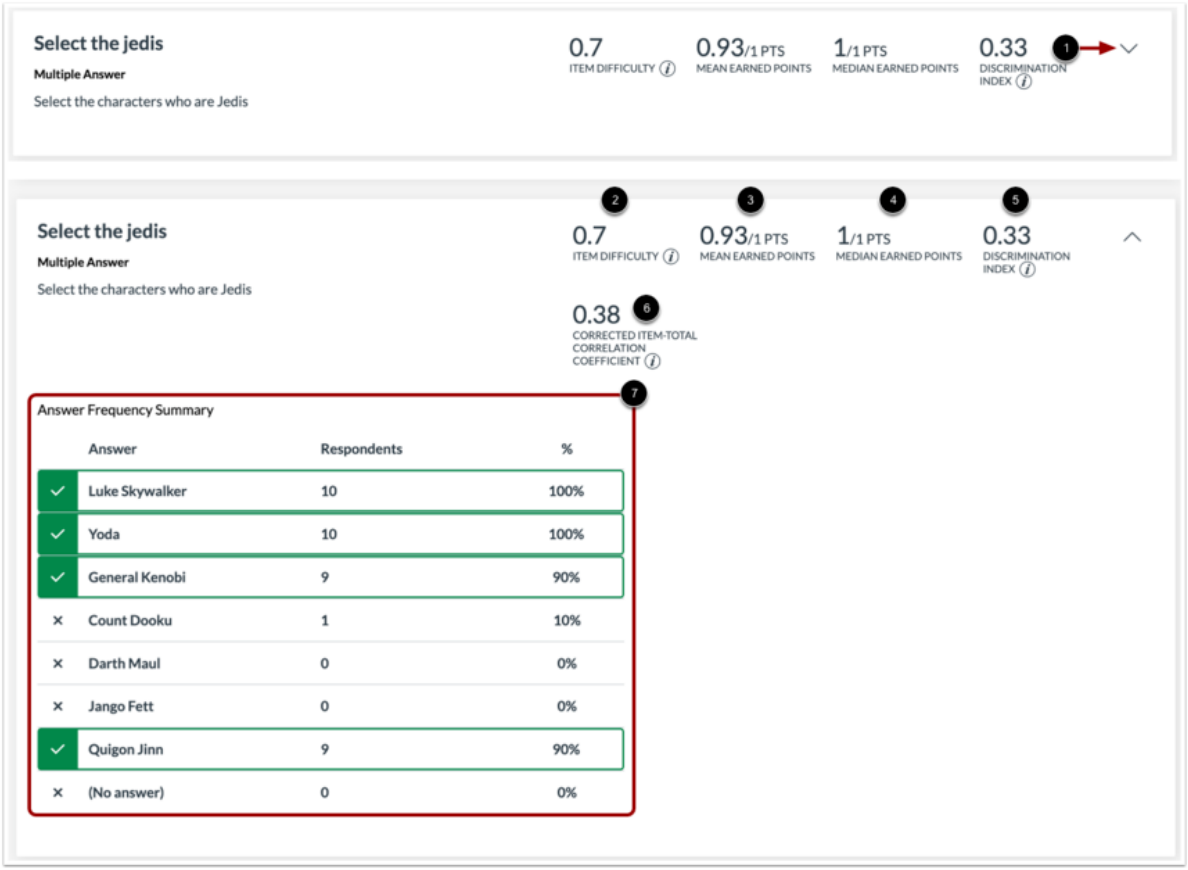


In the summary graph, the x-axis indicates the quiz scored percentages, and the y-axis indicates the number of candidates who received each percentage. If a candidate had multiple attempts, the quiz summary graph will only display the highest score for the candidate.

Item Analysis Report

The Item Analysis includes statistics for items in a quiz and their correlation to the overall quiz score. To view Item Analysis details, click the **Expand** icon [1]. The following statistics are available:

- **Item Difficulty** [2]: measures the proportion of students who answered the question correctly
- **Mean Earned Points** [3]: displays average point score out of the maximum possible points
- **Median Earned Points** [4]: displays median point score out of the maximum possible points
- **Discrimination Index** [5]: assesses the ability of an item to differentiate between the highest scoring and lowest scoring students
- **Corrected Item-Total Correlation Coefficient** [6]: measures the correlation between a given item and the total score
- **Answer Frequency Summary Chart** [7]: displays the number and percentage of students who selected each answer choice (Note: The Answer Frequency Summary chart only appears for questions with answer choices).



Beyond the PEC - Additional Content for Educators

Biotility has made a wide range of resources available beyond the BACE Practice Exam Course to support educators. These resources are centrally located on the Exam Site Support Hub page under the Exam Site Action Center Exam Prep.

Crosswalks and Alignments

To assist educators in aligning their curricula with the BACE, Biotility has provided crosswalks for two commonly used learning pathways:

- Bio-Rad's Biotechnology: A Laboratory Skills Course (Brown, 2018)
- Project Lead the Way (PLTW) Biomedical Science Pathway

These crosswalks help educators integrate relevant content and skills into their instruction, ensuring that students are well-prepared for the BACE.

Professional Development for Educators

Biotility offers a range of professional development opportunities designed to help educators integrate essential industry competencies into their teaching. These programs are crafted to enhance educators' ability to prepare students for successful careers in the biotechnology and bioscience fields by equipping them with practical, real-world skills that are highly valued in the industry. The courses and experiences provided are tailored to meet the needs of educators who seek to bridge the gap between academic instruction and industry expectations.

- **Certificate Short-Courses** – These short courses are designed to integrate critical workplace competencies into curricula and help educators equip students with essential industry skills, enhancing their readiness for careers in drug development and manufacturing.
    - Industrial Biotechnology & Regulatory Compliance Overview
    - Teaching Good Laboratory Practices (GLP) as a Workplace Skill
    - Teaching Current Good Manufacturing Practices (CGMP) as a Workplace Skill
    - Using CAPA to Transform Laboratory Errors into Real-World Scenarios
    - Teaching Good Documentation Practices (GDP) as a Workplace Skill

- Industrial Biotech Teacher Experience (IBEE) - The Industrial Biotechnology Educator Experience (IBEE) is a comprehensive asynchronous professional development program designed for secondary and post-secondary educators teaching any curriculum in which biotechnology concepts and techniques may be integrated.