



INSTRUCTIONAL MATERIALS ADMINISTRATOR

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Recommendation

Yes

Comments: These materials include a wide array of laboratory work that allows the students to become competent with the skills necessary to succeed at an entry level position in the industrial biotechnology field.

Notation: These materials would be appropriate for a three year high school biotechnology program or a one year introductory college course.

Material for Review

Course: Industrial Biotechnology (8736000)

Title: Biotechnology: Science for the New Millennium , Edition: 1E REVISED

Copyright: 2012

Author: Ellyn Daugherty

Grade Level: 9 - 12

Content

Answer each item below and select the "Save" button to save your responses. You must select the "Save" button before going to another section or leaving this page to save the answers you have provided. If you are unable to complete the section, you may save your answers and come back to complete at a later time. All items must be answered for a section to be considered complete.

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To answer each item, select the appropriate rating from the following scale:

- 5 - VERY GOOD ALIGNMENT
- 4 - GOOD ALIGNMENT
- 3 - FAIR ALIGNMENT
- 2 - POOR ALIGNMENT
- 1 - VERY POOR/NO ALIGNMENT

Upon completion of all Areas of Review, the Recommendation link will become available with a record of how you scored each section of the evaluation.

- Reviewers are instructed that submissions should be consistently rated as 5 or 4 to be recommended for adoption. Materials that are consistently rated 2 or 1 are not expected to be recommended for adoption.
- Comments are strongly encouraged to justify each rating. Please use the Comments section to list any strengths, weaknesses, concerns, issues, and/or to provide examples supporting the rating.
- Additional information regarding the Content, Presentation, and Learning requirements are located in the Career and Technical Education Specifications for the 2015-16 Florida State Adoption of Instructional Materials.

Each set of materials submitted for adoption is evaluated based on each benchmark for that course and the Content, Presentation, and Learning items included in this rubric.

A. Alignment with curriculum 1. A. The content aligns with the state's standards and benchmarks for subject, grade level and learning outcomes.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook covers all but several of the benchmarks for Biotechnology I, II and III. The areas lacking include chemical bonds, thermodynamics, blood typing and blood borne pathogens, communication skills, use of military time and balancing equations. This information can be easily supplemented by the instructor.

2. A. The content is written to the correct skill level of the standards and benchmarks in the course.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook covers the correct skill levels of the standards in a manner that can be understood for students in grades 9-12.

3. A. The materials are adaptable and useful for classroom instruction.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

There are many additional activities at the end of each chapter that can allow for deeper study and relating material to real world scenarios.

B. Level of Treatment4. B. The materials provide sufficient details for students to understand the significance of topics and events.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Several major ideas are lacking the background necessary for student understanding. For example, chemical bonds are not discussed in the textbook, but students have to understand the levels of protein folding later in the textbook. This material would have to be supplemented by the instructor for student comprehension.

5. B. The level (complexity or difficulty) of the treatment of content matches the standards.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook does a good job of explaining complex concepts to a high school level student.

6. B. The level (complexity or difficulty) of the treatment of content matches the student abilities and grade level.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook is suitable for grades nine through twelve and beyond. It progresses from simple to more complex and could be used over several years of instruction.

7. B. The level (complexity or difficulty) of the treatment of content matches the time period allowed for teaching.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook could successfully be used for a three year biotechnology program. The laboratory supplement provides a practical application for the content area and allows real world application of the concepts.

C. Expertise for Content Development8. C. The primary and secondary sources cited in the materials reflect expert information for the subject.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook contains many reports of scientific discoveries, results of classic experiments and use of clinical trials to reflect primary sources. The textbook analyzes and interprets past discoveries and research throughout, citing secondary sources.

9. C. The primary and secondary sources contribute to the quality of the content in the materials.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The primary and secondary sources add to the ability of students to comprehend the material.

D. Accuracy of Content10. D. The content is presented accurately. (Material should be devoid of typographical or visual errors).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The material throughout the textbook is accurate and up to date.

11. D. The content of the material is presented objectively. (Material should be free of bias and contradictions and is noninflammatory in nature).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The material is presented objectively. There was no bias or contradiction found. The textbook is noninflammatory and represents sexes and nationalities equally.

12. D. The content of the material is representative of the discipline? (Material should include prevailing theories, concepts, standards, and models used with the subject area).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The material is representative of the biotechnology industry, especially industrial biotechnology. It includes standards and skills that will allow students to succeed in this industry.

13. D. The content of the material is factual accurate. (Materials should be free of mistakes and inconsistencies).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

No mistakes or inconsistencies were found.

E. Currency of Content 14. E. The content is up-to-date according to agriculture industry standards of practice.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The copyright date is 2012. There have been many advances in industrial and pharmaceutical biotechnology in the past four years.

15. E. The content is presented to the curriculum, standards, and benchmarks in an appropriate and relevant context.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The sequencing of the textbook is logical and builds on prior knowledge. It is missing several key benchmarks (chemical bonds) that would be helpful in understanding later chapters. It could use more depth in protein folding and DNA replication to meet the standards of the Florida Biotechnician Assisting Credential Exam.

16. E. The content is presented in an appropriate and relevant context for the intended learners.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook is suitable for grades nine through twelve and is age appropriate.

F. Authenticity of Content 17. F. The content includes connections to life in a context that is meaningful to students.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Each chapter contains photographs and examples that connect to life in a meaningful way.

18. F. The material includes interdisciplinary connections which are intended to make the content meaningful to students.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The activities at the end of the chapter include writing assignments. There are many mathematical applications throughout the textbook. The history of biotechnology is also covered.

G. Multicultural Representation 19. G. The portrayal of gender, ethnicity, age, work situations, cultural, religious, physical, and various social groups are fair and unbiased. (Please explain any unfair or biased portrayals in the comments section).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Photographs and examples include a broad range of gender, ethnicity, age, cultural and work situations. Specific religious and social groups are not obvious to the reader.

H. Humanity and Compassion 20. H. The materials portray people and animals with compassion, sympathy, and consideration of their needs and values and exclude hard-core pornography and inhumane treatment. (An exception may be necessary for units covering animal welfare).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

There are no pictures of inhumane treatment of animals in the textbook or laboratory manual. All pictures of animals show consideration and compassion for the animals

21. In general, is the content of the benchmarks and standards for this course covered in the material.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

In general, these materials do a good job of covering most of the benchmarks and standards for Biotechnology I, II and III.

Presentation

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A. Comprehensiveness of Student and Teacher Resources 1. A. The comprehensiveness of the student resources address the targeted learning outcomes without requiring the teacher to prepare additional teaching materials for the course.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

There are no active study guides or class materials other than the laboratory book. All reading comprehension materials would need to be developed by the teacher. The teacher would need to prepare additional materials for the missing benchmarks. (Chemical bonds, thermodynamics, balancing equations, blood types/blood borne pathogens, communication skills)

B. Alignment of Instructional Components 2. B. All components of the major tool align with the curriculum and each other.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The laboratory manual and Encore CD correlate strongly with the textbook and the curriculum

C. Organization of Instructional Materials 3. C. The materials are consistent and logical organization of the content for the subject area.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The organization of the textbook and laboratory manual are consistent and logical. The information builds from the beginning to the end of the course.

D. Readability of Instructional Materials 4. D. Narrative and visuals engage students in reading or listening as well as in understanding of the content at a level appropriate to the students' abilities.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook and laboratory manual have many pictures to exemplify the concepts. The Encore CD contains visual and verbal tutorials for difficult concepts.

E. Pacing of Content 5. E. The amount of content presented at one time or the pace at which it is presented must be of a size or rate that allows students to perceive and understand it.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Some material (ie. proteins and DNA) require supplemental explanation by the teacher. It is either assumed the student has received this information from other coursework. There are areas that could use more depth of understanding.

Accessibility 6. The material contains presentation, navigation, study tool and assistive supports that aid students, including those with disabilities, to access and interact with the material. (For assistance refer to the answers on the UDL questionnaire).

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The materials include a supplemental tutorial CD that addresses different learning styles. The test bank is thorough and represents the content of the textbook. The bioethics and biotech online activities at the end of each chapter do a good job of supplementing the text and help to meld the curriculum with math and language standards. There was no indication of strategies for students with disabilities

7. In general, how well does the submission satisfy PRESENTATION requirements? (The comments should support your responses to the questions in the Presentation section).

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The submission does a good job of satisfying presentation requirements. It would helpful to instructors to include a workbook or reading guides for the students

Learning

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A. Motivational Strategies 1. A. Instructional materials include features to maintain learner motivation.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The bioethics activities and biotech online activities at the end of each chapter show real life application of the topics of study and the application to the business world. They are motivating and interesting.

B. Teaching a Few "Big Ideas" 2. B. Instructional materials thoroughly teach a few important ideas, concepts, or themes.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Overall, the main ideas, concepts and themes are suitably covered. There are several areas where prior knowledge by the student is assumed and a bit more depth needs to be incorporated in accordance to individual student needs or background.

C. Explicit Instruction 3. C. The materials contain clear statements of information and outcomes.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Chapter objectives are clearly stated and covered.

D. Guidance and Support 4. D. The materials provide guidance and support to help students safely and successfully become more independent learners and thinkers.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The supplemental activities and laboratory experiments create independence in the learner. Safety is stressed throughout the laboratory manual.

5. D. Guidance and support must be adaptable to developmental differences and various learning styles.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook and laboratory manual activities allow for various learning styles most of the time. There are some activities and labs that might need to be adapted to different developmental differences by the individual instructors.

E. Active Participation of Students6. E. The materials engage the physical and mental activity of students during the learning process.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The textbook and laboratory manual present activities that engage the mental activity of the learning process. The laboratory manual allows for physical engagement of the learning process. The laboratory activities allow the students to build their skill levels as the labs progress.

7. E. Rate how well the materials include organized activities that are logical extensions of content, goals, and objectives.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The Encore CD organizes tutorials that supplement the textbook objectives. The activities located at the end of each chapter in the textbook allows for customization by the instructor according to the needs of the students. The laboratory manual provides the skills required by students to be successful in the industrial biotechnology industry.

F. Targeted Instructional Strategies8. F. Instructional materials include the strategies known to be successful for teaching the learning outcomes targeted in the curriculum requirements.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Overall, instruction materials include classic strategies. Reading guides would need to be developed by the teacher to aid in reading comprehension.

9. F. The instructional strategies incorporated in the materials are effective in teaching the targeted outcomes.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Overall, the strategies are effective in teaching the targeted outcomes. There are several major concepts that might require more depth by the instructor to allow for deeper understanding by the student. One example is the explanation of chemical bonds that will later relate to the understanding of protein folding. This understanding is then needed for comprehension of enzymatic activity.

G. Targeted Assessment Strategies10. G. The materials correlate assessment strategies to the desired learning outcomes.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The test bank is very thorough and contains multiple choice, short answer, true false and essay questions. The laboratory manual allows for assessment of the skills necessary to succeed in the biotechnology industry.

11. G. the assessment strategies incorporated in the materials are effective in assessing the learners' performance with regard to the targeted outcomes.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

The assessment strategies provide sufficient means to show mastery of the intended learning outcomes.

Universal Design for Learning12. This submission incorporates strategies, materials, activities, etc., that consider the needs of all students.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

Overall this submission incorporates successful strategies, materials and activities. Lower level students would require additional materials created by the instructor to help them master difficult biochemical concepts.

13. In general, does the submission satisfy LEARNING requirements? (The comments should support your responses to the questions in the Learning section.)

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:

This submission satisfies learning requirements established for Biotechnology I, II and III. Students mastering this content would be successful in attaining the skills required to succeed in the biotechnology industry.

If you have questions contact Office of Instructional Materials, instaff@fldoe.org or 850-245-0425

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