



## Microbiomics education using a mini-CURE format results in a high level of scientific discovery perception

M. C. Morsink, E. N. van Schaik, K. Bossers and A. G. C. L. Speksnijder

University of Applied Science Leiden, Leiden Center for Applied Bioscience, Zernikedreef 11., 2333 CK Leiden, Netherlands

### Abstract

The rapidly expanding research field of microbiomics requires more specialized lab technicians. Teaching 'omics' research methodology in a course-based undergraduate research experience (CURE) format has been shown to be highly effective. Currently, we developed a 4-week mini-CURE using publicly available Australian coral microbiome DNA sequencing data. We evaluated our mini-CURE using 2 hallmarks that measure student's perception of doing original scientific research (*discovery & iteration*) and 3 omics-research based student performance criteria (*data generation, analysis & application*). The 'discovery' hallmark received high agreement scores, indicating high levels of student perception of scientific discovery. Two out of 3 'iteration' dimension items showed lower agreement scores, indicating a perception of lack of time to revise analyses and research questions; motivating students to invest more time may solve this issue. Students performed well with sufficient scores over 70% for all performance criteria. We conclude that our mini-CURE performs well on the discovery hallmark but needs optimization for iteration to enhance the students' scientific research experiences.

**Keywords:** microbiomics, education, bioinformatics, biostatistics, discovery, iteration, inquiry, coral

**Citation:** Morsink MC, van Schaik EN, Bossers K, and Speksnijder AGCL. 2024. Microbiomics education using a mini-CURE format results in a high level of scientific discovery perception. Abstract 56 In: Boone E and Thuecks S, eds. *Advances in biology laboratory education*. Volume 44. Publication of the 44th Conference of the Association for Biology Laboratory Education (ABLE). DOI: <https://doi.org/10.37590/able.v44.abs56>

**Correspondence to:** Maarten Morsink, [morsink.m@hsleiden.nl](mailto:morsink.m@hsleiden.nl)

### **Mission, Review Process & Disclaimer**

The Association for Biology Laboratory Education (ABLE) was founded in 1979 to promote information exchange among university and college educators actively concerned with teaching biology in a laboratory setting. The focus of ABLE is to improve the undergraduate biology laboratory experience by promoting the development and dissemination of interesting, innovative, and reliable laboratory exercises. For more information about ABLE, please visit <https://www.ableweb.org/>.

Papers published in *Advances in Biology Laboratory Education: Peer-Reviewed Publication of the Conference of the Association for Biology Laboratory Education* are evaluated and selected by a committee prior to presentation at the conference, peer-reviewed by participants at the conference, and edited by members of the ABLE Editorial Board.

Compilation © 2024 by the Association for Biology Laboratory Education, ISSN 2769-1810. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copyright owner. ABLE strongly encourages individuals to use the exercises in this volume in their teaching program. If this exercise is used solely at one's own institution with no intent for profit, it is excluded from the preceding copyright restriction, unless otherwise noted on the copyright notice of the individual chapter in this volume. Proper credit to this publication must be included in your laboratory outline for each use; a sample citation is given below the abstract.