BACKGROUND

Getting started:


Additional background reading:


**WRITING CASES**

*Getting started:*


**Additional information on writing case studies:**


**TEACHING WITH CASES**

**Getting started:**


**Additional resources on teaching with cases:**


Chowdhury, M. A. (2013). Incorporating a soap industry case study to motivate and engage students in the chemistry of daily life. *Journal of Chemical Education, 90*(7), 866-872. [https://doi.org/10.1021/ed300072e](https://doi.org/10.1021/ed300072e)


Contakes, S. M. (2016). Misconduct at the lab? A performance task case study for teaching data analysis and critical thinking. *Journal of Chemical Education, 93*(2), 314–317. [https://doi.org/10.1021/acs.jchemed.5b00478](https://doi.org/10.1021/acs.jchemed.5b00478)


Coppo, P. (2017). Lithium-ion battery cathode materials as a case study to support the teaching of ionic solids. Journal of Chemical Education, 94(8), 1174–1178. https://doi.org/10.1021/acs.jchemed.6b00569


Field, P. R. (2013). Revising a formal case study presentation as an independent research project. Journal of College Science Teaching, 43(2), 74-77.


Jones, M. A. (1997). Use of a classroom jury trial to enhance students’ perception of science as part of their lives. *Journal of Chemical Education, 74*(5), 537. [https://doi.org/10.1021/ed074p537](https://doi.org/10.1021/ed074p537)


Kemp, H. V. (1980). Teaching psychology through the case study method. *Teaching of Psychology, 7*(1), 38 [4p]. [https://doi.org/10.1207/s15328023top0701_10](https://doi.org/10.1207/s15328023top0701_10)


Knight, J., Fulop, R., Marquez-Magana, L., & Tanner, K. D. (2008). Investigative cases and student outcomes in an upper-division cell and molecular biology laboratory course at a minority-serving institution. *CBE—Life Sciences Education, 7*, 382-393. [https://doi.org/10.1187/cbe.08-06-0027](https://doi.org/10.1187/cbe.08-06-0027)


Larraneta, E. (2018). Incorporating stories of sedatives, spoiled sweet clover hay, and plants from the Amazon rainforest into a pharmaceutical chemistry course to engage students and introduce drug design strategies. *Journal of Chemical Education, 95*(10), 1778-1786. https://doi.org/10.1021/acs.jchemed.8b00063


Nelson, T. K. (2010). *Case-based learning (CBL) in selected physical therapy curricula and its perceived effectiveness by students, faculty, and administrators* (Ed.D. dissertation), University of New Orleans. [https://scholarworks.uno.edu/td/1160/](https://scholarworks.uno.edu/td/1160/)


Saloranta, T., Lönnqvist, J. E., & Eklund, P. C. (2016). Transforming undergraduate students into junior researchers: Oxidation–reduction sequence as a problem-based case study. *Journal of Chemical Education, 93*(5), 841–846. [https://doi.org/10.1021/acs.jchemed.5b00495](https://doi.org/10.1021/acs.jchemed.5b00495)


Soja, C. M., & Huerta, D. (2001). Debating whether dinosaurs should be “cloned” from ancient DNA to promote cooperative learning in an introductory evolution course. *Journal of Geoscience Education, 49*, 43-49. [https://doi.org/10.5408/1089-9995-49.2.150](https://doi.org/10.5408/1089-9995-49.2.150)


Taylor, A. (2013). ConfChem Conference on Case-Based Studies in Chemical Education: One story, different classes: Using the same case study for different levels of chemistry students. *Journal of Chemical Education, 90*(2), 266-267. [https://doi.org/10.1021/ed200791a](https://doi.org/10.1021/ed200791a)


Valente Nabias, J. M., & Costa, S. D. (2017). A forensic experiment: The case of the crime at the cinema. *Journal of Chemical Education, 94*(8), 1111–1117. [https://doi.org/10.1021/acs.jchemed.6b00942](https://doi.org/10.1021/acs.jchemed.6b00942)


Zipp, G. P., & Mailer, C. (2010). Use of video-based cases as a medium to develop critical thinking skills in health science students. *Journal of College Teaching & Learning, 7*(1), 1-4. [https://doi.org/10.19030/tlc.v7i1.72](https://doi.org/10.19030/tlc.v7i1.72)

### ASSESSING STUDENT CASE WORK

**Highlighted articles:**


**Additional resources on assessment:**


**FACILITATING CASE DISCUSSIONS**

*Highlighted articles:*


*Other publications:*

Allen, D., & Tanner, K. 2002. Answers worth waiting for: One second is hardly enough. *Cell Biology Education, 1*(1), 3-5. [https://doi.org/10.1187/cbe.02-04-0430](https://doi.org/10.1187/cbe.02-04-0430)


**COOPERATIVE LEARNING / SMALL GROUPS**

*Highlighted articles:*


Additional information on cooperative learning / small groups:


Pukkila P. J. (2004). Introducing student inquiry in large introductory genetics classes. *Genetics, 166*(1), 11-18. [https://doi.org/10.1534/genetics.166.1.11](https://doi.org/10.1534/genetics.166.1.11)


Thompson, M. E., & Lamanna, A. C. (2020). Catalyzing group work in introductory chemistry: Evaluation of five strategies. *Journal of Chemical Education, 97*(2), 351-357. [https://doi.org/10.1021/acs.jchemed.9b00454](https://doi.org/10.1021/acs.jchemed.9b00454)


**PROBLEM-BASED LEARNING** [very selective list of publications]


Quattrucci, J. (2018). Problem-based approach to teaching advanced chemistry laboratories and developing students' critical thinking skills. Journal of Chemical Education, 95(2), 259–266. https://doi.org/10.1021/acs.jchemed.7b00558


GUIDED DESIGN [very selective list of publications]


Cresswell, S. L., & Loughlin, W. A. (2017). A case-based scenario with interdisciplinary guided-inquiry in chemistry and biology: Experiences of first year forensic science students. *Journal of Chemical Education, 94*(8), 1074-1082. [https://doi.org/10.1021/acs.jchemed.6b00827](https://doi.org/10.1021/acs.jchemed.6b00827)


CASE STUDIES

The National Center for Case Study Teaching in Science (NCCSTS) case collection contains over 900 peer-reviewed case studies in all areas of science. Originally developed at the University at Buffalo under the direction of Clyde Freeman Herreid and Nancy A. Schiller, the NCCSTS case collection was transferred to the National Science Teaching Association (NSTA) in February 2022. To learn more about how you can access these cases and their detailed teaching notes, visit the NSTA website at https://www.nsta.org/case-studies