

Course literature

UM045FN, Didactic modelling, Third-cycle level, 7,5 ECTS

credits

Arnold, K.-H. (2012). Didactics, didactic models and learning. In N. M. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 986-990). Boston, MA: Springer US. (5 p.)

Downes, S. M. (2021). *Models and Modeling in the Sciences: A Philosophical Introduction*. Routledge. (114 p.)

Gundem, B. (2000). Understanding European didactics. In B. Moon, M. Ben-Peretz, & S. A. Brown (Eds.), *Routledge International Companion to Education* (pp. 210-233). London: Routledge. (24 p.)

Hamza, K., & Lundqvist, E. (2023). Mangling didactic models for use in didactic analysis of classroom interaction. In F. Ligozat, K. Klette, & J. Almqvist (Eds.), *Didactics in a Changing World: European Perspectives on Teaching, Learning and the Curriculum* (pp. 103-121). Springer International Publishing. https://doi.org/10.1007/978-3-031-20810-2_7. (18 p.)

Ingerman, A., & Wickman, P.-O. (2015). Towards a teachers' professional discipline: Shared responsibility for didactic models in research and practice. In P. Burnard, B.-M. Apelgren, & N. Cabaroglu (Eds.), *Transformative teacher research* (pp. 167-179). Rotterdam: Sense Publishers. (12 p.)

Kansanen, P., & Meri, M. (1999). The didactic relation in the teaching-studying-learning process. In B. Hudson, F. Buchberger, P. Kansanen, & H. Seel (Eds.), *Didaktik/Fachdidaktik as science(-s) of the teaching profession?* (Vol. 2, pp. 107-118). Umeå: Thematic Network of Teacher Education in Europe. (11 p.)

Karlström, M., & Hamza, K. (2021). How do we teach planning to pre-service teachers – A tentative model. *Journal of Science Teacher Education*, 32(6), 664-685. <https://doi.org/10.1080/1046560X.2021.1875163>. (21 p.)

Lundegård, I., & Caiman, C. (2019). Didaktik för naturvetenskap och hållbar utveckling - Fem former av demokratiskt deltagande [Education for science and Sustainable



Development - Four forms of Democratic Participation]. *NorDiNa: Nordic Studies in Science Education*, 15(1), 38-53. <https://doi.org/10.5617/nordina.4822>. (15 p.)

Sjöström, J., & Rydberg, C. (2018). Towards transdisciplinary Didaktik: didactic modelling of complex controversial issues teaching for reflexive Bildung and sustainability. In I. Eilks, S. Markic, & B. Raller (Eds.), *Building Bridges Across Disciplines for Transformative Education and a Sustainable Future* (pp. 3-15). Shaker Verlag. (12 p.)

Sjöström, J., Eilks, I., & Talanquer, V. (2020). Didaktik models in chemistry education. *Journal of Chemical Education*. <https://doi:10.1021/acs.jchemed.9b01034> (6 p.)

Thalheim, B. (2010). Towards a theory of conceptual modelling. *Journal of Universal Computer Science*, 16(20), 3102-3137. (35 p.)

The Design-Based Research Collective. (2003). Design-Based Research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), 5-8. <https://doi.org/10.3102/0013189X032001005> (4 p.)

Weiland, M., Caiman, C., & Hamza, K. (2026). Considerations for the teacher-researcher collaboration during the mangling phase of didactic modelling in primary science. *Nordic Studies in Science Education*, 22, 73-91. <https://doi.org/10.5617/nordina.11837> (18 p.)

Wickman, P.-O. (2015). Teaching learning progressions: An international perspective. In N. G. Lederman & S. K. Abell (Eds.), *Handbook of Research on Science Education* (2nd ed., pp. 145-163). New York: Routledge. (18 p.)

Wickman, P.-O., Hamza, K., & Lundegård, I. (2020). Didactics and didactic models in science education. In P. J. White, R. Tytler, J. Ferguson, & J. Cripps Clark (Eds.), *Methodological approaches to STEM education research* (Vol. 1, pp. 34-49). Newcastle upon Tyne, U.K: Cambridge Scholars Publishing. (15 p.)

Östman, L., van Poeck, K., Lidar, M., & Lundqvist, E. (2025). Theory-practice bridging through lesson design workshops. *Scandinavian Journal of Educational Research*, 1-16. <https://doi.org/10.1080/00313831.2025.2516446>. (16 p.)

(A total of approximately 344 pages.)

Optional literature

One of the two books below:

Sjöström, J., & Tyson, R. (2022). *Didaktik för lärande och bildning / Jesper Sjöström och Ruhi Tyson* (Första upplagan ed.). Liber. (Selection of about 120 p.)



Westbury, I., Hopmann, S., & Riquarts, K. (2000). *Teaching as a reflective practice: the German Didaktik tradition*. L. Erlbaum Associates. (Selection of about 120 p.)

Optional journal papers:

Articles that address didactic models or related knowledge products within the relevant subject area are selected in consultation with the course participants. (150 p.)