

SECONDARY EDUCATION - SCIENCE (A)

The Integrated Science Major combined with the requirements of Concordia's Secondary Education Program prepares students to become effective science teachers. Students will learn the necessary science content from professors who model effective science teaching, learn the best practices in education and engage in numerous hours of field work in area classrooms. Once completed, students will know and be able to apply the fundamental concepts in the physical, life, and Earth /space sciences. They will understand the nature of science, its unifying concepts, and the inquiry process scientists use to discover new knowledge and they will use this knowledge to enable future students to build a base for scientific and technological literacy. This course of study will prepare students for the Michigan Test of Teacher Certification (MTTC) and meets all of the requirements set by the Michigan Department of Education (MDE) and National Science Teachers Association (NSTA) necessary for certification.

Middle Levels Overview: Concordia University Ann Arbor's Middle Levels teacher certification program equips teacher leaders with the skills and dispositions uniquely required to teach students in the middle grades. You'll learn how to design and use teaching methods in your specialty area that will make a meaningful impact in the classroom. Our program encourages the practical application of pedagogical skills through the use of clinical experiences in every course. You'll leave the program prepared and confident to engage middle level learners to reach their highest potential.

Upper Levels Overview: The Upper Levels grade band teacher certification focuses specifically on the skills and dispositions needed to teach middle and high school age students. In this program you will gain an understanding of the pedagogy specific to learners in this age group as well as comprehend alignment of curriculum for effective instruction. Students who choose this grade band are dynamic instructors of their content area who are fully supported to teach various subjects with the goal of increased student learning.

Professional Sequence Learning Outcomes:

- Plan, modify and apply evidence based instructional approaches that promote vocabulary growth.
- Implement texts that showcase a variety of viewpoints, genres, literary devices and audiences.
- Cultivate students' literary identities through motivational and engagement strategies.
- Learn to provide opportunities for active listening and collaborative classroom discussions.
- Possess the knowledge of a plethora of literary texts relevant to secondary learners to encourage reading for pleasure.
- Connect teaching and learning to social contexts that promote student growth of critical consciousness.

The School of Education Program Learning Outcomes:

- **SL1. Faith Integration:** Candidates display the Christian principles that are central to the university's mission.
- **SL2. Caring Relationships:** Candidates establish caring, supportive relationships with students, families and colleagues.

- **RP3. Disciplinary Knowledge:** Candidates demonstrate an in-depth knowledge of the skills and frameworks of their content areas appropriate to their certification.
- **RP4. Pedagogy and Instruction:** Candidates understand and implement best practices of instruction and deliver well-differentiated and well-aligned instruction that empowers students as learners.
- **RP5. Communication:** Candidates demonstrated effective communication skills to enhance teaching and learning.
- **RP6. Assessment:** Candidates use various types of assessment to evaluate student progress and to improve their instruction.
- **RP7. Classroom Environment:** Candidates assess and respond appropriately to the cultures of diverse classrooms, schools, and the community.
- **LL8. Professionalism and Personal Growth:** Candidates engage in continuous growth by consistently expanding their professional knowledge, skills and dispositions.

Science Learning Outcomes:

- Create learning environments that account for students' backgrounds and engage them in the learning process.
- Uncover student thought processes about science through well designed lessons and classroom experiments.
- Use data from formative and summative assessment to provide explicit feedback to students to encourage personalized growth.
- Establish the needs to rules, routines and procedures as a way to keep all students safe in a science classroom.
- Reflect on student learning as a means of professional growth.
- Design learning opportunities that allow students to unpack science concepts that use problem solving skills and technology as a means for obtaining knowledge.
- Internalize specific content knowledge in the areas of life, earth, space and physical science as well as engineering.

Curriculum

Code	Title	Hours
Professional Education Studies: Middle Levels (grades 5-9), All content areas		
EDU 230	Teaching and Learning in Diverse Societies	3
EDU 232	Teaching and Learning in Diverse Societies Secondary Clinical	1
EDU 240	Human Growth and Development	3
EDU 242	Human Growth and Development Secondary Clinical	1
EDU 250	Technology for Educators	2
EDU 491	Intro to Learning Disabilities	3
EDU 335	Designing Instruction for Student Success	3
EDU 337	Designing Instruction for Student Success Secondary Clinical	1
EDU 365	Differentiation for All Learners	3
EDU 367	Differentiation for All Learners Secondary Clinical	1
EDU 380	Assessment and Evaluation for Educators	3
EDU 382	Assessment and Evaluation for Educators Secondary Clinical	1
EDU 395	Preparing for Student Teaching	1
EDU 420	Methods for Teaching Middle Levels (5-9)	3
EDU 421	Methods for Teaching Middle Levels (5-9) Clinical	1

EDU 457	Literacy for Teaching Middle Levels (5-9)	3
EDU 458	Literacy for Teaching Middle Levels (5-9) Clinical	1
EDU 480	Student Teaching for Middle Levels (5-9)	12
Total Hours		46

Code	Title	Hours
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Science (Middle Level Grades 5 - 9)

EDU 324	Teaching Science for Middle and Upper Levels	3
BIO 151	Functional Human Biology I	4
BIO 152	Functional Human Biology II	4
BIO 410	Ecology	4
CHEM 141	General Chemistry I	4
PHYS 151	General Physics I	4
PHYS 152	General Physics II	4
SCI 215	Atmospheric and Space Science	4
BIO 156	Environmental Science	4
Total Hours		35

Curriculum

Code	Title	Hours
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Professional Education Studies: Upper Levels (grades 7-12), All content areas

EDU 230	Teaching and Learning in Diverse Societies	3
EDU 232	Teaching and Learning in Diverse Societies Secondary Clinical	1
EDU 240	Human Growth and Development	3
EDU 242	Human Growth and Development Secondary Clinical	1
EDU 250	Technology for Educators	2
EDU 491	Intro to Learning Disabilities	3
EDU 335	Designing Instruction for Student Success	3
EDU 337	Designing Instruction for Student Success Secondary Clinical	1
EDU 365	Differentiation for All Learners	3
EDU 367	Differentiation for All Learners Secondary Clinical	1
EDU 380	Assessment and Evaluation for Educators	3
EDU 382	Assessment and Evaluation for Educators Secondary Clinical	1
EDU 395	Preparing for Student Teaching	1
EDU 433	Methods for Teaching Upper Levels (7-12)	3
EDU 434	Methods for Teaching Upper Levels (7-12) Clinical	1
EDU 470	Literacy for Teaching Upper Levels (7-12)	3
EDU 471	Literacy for Teaching Upper Levels (7-12) Clinical	1
EDU 482	Student Teaching for Upper Levels (7-12)	12
Total Hours		46

Code	Title	Hours
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Science (Upper Grades 7 - 12)

EDU 324	Teaching Science for Middle and Upper Levels	3
BIO 151	Functional Human Biology I	4
BIO 152	Functional Human Biology II	4
BIO 410	Ecology	4
CHEM 141	General Chemistry I	4
CHEM 142	General Chemistry II	4

PHYS 151	General Physics I	4
PHYS 152	General Physics II	4
SCI 215	Atmospheric and Space Science	4
BIO 156	Environmental Science	4

Total Hours		39
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