

Program Number 10-152-7
Associate Degree of Applied Science • Four Terms

ABOUT THE PROGRAM

The program focuses on programming principles across both web and software development, including web application development, database administration, and modern website design. Students develop strong front-end and back-end skills through hands-on experience with multiple programming languages, frameworks, data-driven systems, and intelligent technologies used in contemporary applications. Emphasis is placed on object-oriented programming, scalable application development, and preparing students for advanced technical roles or continued education.

PROGRAM OUTCOMES

- Design web and software applications.
- Apply data persistence technologies.
- Develop software applications.
- Develop documentation.
- Develop web applications.
- Use infrastructures.
- Analyze new technologies.

CAREER AND EDUCATION ADVANCEMENT OPPORTUNITIES

Lakeshore credits transfer to over 30 universities. For more information visit lakeshore.edu/future-students/transfer.

ADMISSIONS AND FIRST SEMESTER ENROLLMENT STEPS

- Submit online application.
- Complete the online Student Success Questionnaire.
- Complete Get Started at Lakeshore appointment.

**Submit high school transcripts, college transcripts, and test scores (optional, highly recommended). Official transcripts will be needed for transferring college credit(s) and for financial aid purposes.*

ACADEMIC PREPAREDNESS/FUTURE SEMESTER ENROLLMENT STEPS

If applicable, complete program-specific academic preparedness requirements and enrollment steps prior to enrolling in occupational or core courses. Students will be notified if there is a program waitlist. View the college's program webpage for details: <https://lakeshore.edu/programs-and-courses/career-areas/information-technology-it/it-web-software-developer>.

APPROXIMATE COSTS

\$157.45 per credit tuition (WI resident) plus \$9.45 per credit student activity fee. Material fee varies depending on course. Other fees vary by program. Visit <https://lakeshore.edu/paying-for-college/tuition-and-fees> for details.

FINANCIAL AID

This program is eligible for financial aid. Visit lakeshore.edu/Financial-Aid or talk with your College Recruiter about how to apply for aid.

SPECIAL NOTE

- Students are required to have access to a computer with internet connectivity. Computers are available at Lakeshore's campuses for those students who do not have a computer and/or internet access at home.
- Students are required to purchase a domain name and web hosting in Terms 2 and 4. The approximate cost is \$60 per term.
- Students are strongly encouraged to take English Composition 1 during the summer before enrolling in Term 1 classes. General Education courses during summer term allow concentrated time during the fall and spring term for core program courses, and enrolling in Math & Logic in the first term.
- Accelerate your learning, earn credit for what you know, and get personalized support to reach your goals. The full CBE definition may be found at lakeshore.edu/CBE.

CONTACT

Lakeshore College Recruiter
920.693.1366 • Recruitment@lakeshore.edu

Catalog No.	Class Title	Credit(s)
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Term 1

10152233	Introduction to Web Development*	3
10152234	Programming Introduction*	3
10152235	Introduction to Python*	3
10156101	Data Concepts*	3
10804133	Math & Logic	3
		15

Term 2

10152236	Advanced Front-End Development*	3
10152237	Introduction to JavaScript*	3
10152238	Introduction to PHP*	3
10156103	Natural Language Processing w/ Python*	3
10809196	Introduction to Ethics	3
		15

Term 3

10152239	Introduction to Java*	3
10152240	Python for Data Science and Analytics*	3
10156100	Business Applications of AI*	3
10801136	English Composition 1	3
10801198	Speech OR 10801196 Oral/Interpersonal Communication	3
		15

Term 4

10152241	Introduction to .NET*	3
10152242	Advanced Java*	3
10156102	Computer Vision with Python*	3
10152243	Capstone: Design, Development and Portfolio*	3
10809198	Introduction to Psychology OR 10809188 Developmental Psychology	3
		15

TOTAL 60

*CBE delivery only

Curriculum and program acceptance requirements are subject to change. Program start dates vary; check with your Academic Counselor for details. The tuition and fees are approximate based on 2026-2027 rates and are subject to change prior to the start of the academic year.

ADVANCED FRONT-END DEVELOPMENT...apply advanced learned techniques to create responsive, accessible, and performance-optimized web applications using advanced HTML, CSS, and JavaScript techniques. Students will evaluate user interface (UI) and user experience (UX) best practices. **PREREQUISITE:** 10152233 Introduction to Web Development or 10152196 Web Development 1

ADVANCED JAVA...build scalable and efficient Java applications by applying advanced topics such as multithreading, exception handling, file I/O, data structures (lists, stacks, queues, trees, maps, etc.) and graphical user interface (GUI) programming. Students will evaluate design patterns and optimize code for performance and reliability. **PREREQUISITE:** 10152239 Introduction to Java or 10152109 Object-Oriented Programming 1

BUSINESS APPLICATIONS OF AI...explores artificial intelligence (AI) through a business lens, focusing on how AI technologies are applied in different industries. Students will analyze real-world AI use cases, assess business benefits, and examine ethical considerations.

CAPSTONE: DESIGN, DEVELOPMENT, & PORTFOLIO...investigate and evaluate an emerging programming language or framework to determine its practical applications. Plan, design, and develop a fully functional software product demonstrating ability to apply self-directed learning in a real-world context. Assemble a professional portfolio showcasing highest quality work, technical skills, and final project. Analyze current job market trends, research open positions, participate in mock interviews, reflect on growth, and present capstone project. **PREREQS:** 10152236 Adv Front-End or 10201118 Adv Web & 10152237 Intro to JavaScript or 10152199 Web Dev 2 & 10152114 Mobile Dev 2 & 10152238 Intro to PHP or 10152187 Web Dev 3 & 10152240 Python or 10152112 Object Prog 2 & **COREQ:** 10152242 Adv Java

COMPUTER VISION WITH PYTHON...introduces students to computer vision techniques and their applications. Students will learn Python programming necessary for image processing, object detection, and classification. Students will also implement machine learning models for visual data interpretation. **PREREQUISITE:** 10156101 Data Concepts or 10152232 Intro to Database Design & Dev.

DATA CONCEPTS...introduces students to the foundational principles of data, including how data is stored, structured, and analyzed. Students will explore relational databases, data querying, and visualization techniques. Hands-on projects using SQL and reporting tools will reinforce key concepts.

ENGLISH COMPOSITION 1...is designed for learners to develop knowledge and skills in all aspects of the writing process. Planning, organizing, writing, editing and revising are applied through a variety of activities. Students will analyze audience and purpose, use elements of research, and format documents using standard guidelines. Individuals will develop critical reading skills through analysis of various written documents. Discuss reading and writing academic course support with your Counselor.

INTRODUCTION TO .NET...develop dynamic, data-driven applications using Microsoft's .NET platform, including ASP.NET, MVC, and ADO.NET. Students will analyze architecture patterns and implement solutions that connect to databases and utilize modern server-side logic. **PREREQUISITE:** 10152234 or 10152100 Programming Introduction

INTRODUCTION TO ETHICS: THEORY AND APPLICATION...provides a basic understanding of the theoretical foundations of ethical thought. Diverse ethical perspectives will be used to analyze and compare relevant issues. Students will critically evaluate individual, social and/or professional standards of behavior, and apply a systematic decision-making process to these situations. Discuss reading academic course support with your Counselor.

INTRODUCTION TO JAVA...design and develop applications using Java and object-oriented programming (OOP) principles. Students will implement encapsulation, inheritance, and polymorphism in desktop applications, while gaining foundational experience with server-side programming concepts. **PREREQUISITE:** 10152234 or 10152100 Programming Introduction

INTRODUCTION TO JAVASCRIPT...design and implement interactive web applications using JavaScript. Write client-side code that utilizes events, conditionals, loops, arrays, and functions to dynamically modify web content and user experiences. Introduces modern JavaScript libraries and frameworks—including jQuery, jQuery UI, and React—to streamline development, manage state, and build reusable components. Emphasis placed on best practices for DOM manipulation, UI enhancement, and responsive behavior. **PREREQUISITE:** 10152234 or 10152100 Programming Intro

INTRODUCTION TO PHP...create dynamic websites using PHP and MySQL. Students will design forms, process user input, manage sessions and cookies, and query databases to deliver web content. Emphasis is placed on logic, scripting, and server-client communication. **PREREQUISITES:** 10156101 Data Concepts or 10152232 Intro to Database Design & Dev, and 10152233 Introduction to Web Development or 10152196 Web Development 1

INTRODUCTION TO PSYCHOLOGY...introduces students to a survey of the multiple aspects of human behavior. It involves a survey of the theoretical foundations of human functioning in such areas as learning, motivation, emotions, personality, deviance and pathology, physiological factors, and social influences. It directs the student to an insightful understanding of the complexities of human relationships in personal, social, and vocational settings. Discuss reading academic course support with your Counselor.

INTRODUCTION TO PYTHON...write, test, and debug Python programs using structured logic, control flow, functions, and standard libraries. Students will build basic applications while learning Python syntax, modular coding practices, and core programming structures.

INTRODUCTION TO WEB DEVELOPMENT...learn the principles of web page design by creating accessible, standards-compliant websites using HTML and CSS. Students will apply layout, formatting, and styling techniques. The course emphasizes current trends, responsive design, and usability best practices.

MATH & LOGIC...will apply mathematical problem solving techniques. Topics will include symbolic logic, sets, algebra, Boolean algebra, and number bases. Discuss math and reading academic course support with your Counselor.

NATURAL LANGUAGE PROCESSING WITH PYTHON...focuses on Natural Language Processing (NLP) techniques for text-based AI applications. Students will build on their Python knowledge to process and analyze text data, train machine learning models, and develop NLP-powered applications. **PREREQUISITE:** 10156101 Data Concepts or 10152232 Intro to Database Design & Dev.

PROGRAMMING INTRODUCTION...develop problem-solving and logical thinking skills by learning to design, plan, and implement basic computer programs. Students will construct flowcharts, write pseudocode, and code solutions using fundamental concepts such as variables, data types, conditionals, loops, arrays, and functions.

PYTHON FOR DATA SCIENCE AND ANALYTICS...analyze, visualize, and interpret real-world datasets using Python libraries such as pandas, NumPy, and Matplotlib. Students will apply data science techniques to uncover insights and present findings in visual and narrative formats. **PREREQUISITE:** 10152235 Introduction to Python

SPEECH...explores the fundamentals of effective oral presentation to small and large groups. Topic selection, audience analysis, methods of organization, research, structuring evidence and support, delivery techniques, and other essential elements of speaking successfully, including the listening process, form the basis of the course. Discuss reading academic course support with your Counselor.