**COURSE**1

[Introduction to Cloud Computing](https://www.coursera.org/learn/introduction-to-cloud?specialization=ibm-full-stack-cloud-developer)

**4.7 stars** 1,852 ratings • 430 reviews

This course introduces you to the core concepts of cloud computing. You gain the foundational knowledge required for understanding cloud computing from a business perspective as also for becoming a cloud practitioner. You understand the definition and essential characteristics of cloud computing, its history, the business case for cloud computing, and emerging technology usecases enabled by cloud. We introduce you to some of the prominent service providers of our times (e.g. AWS, Google, IBM, Microsoft, etc.) the services they offer, and look at some case studies of cloud computing across industry verticals.

You learn about the various cloud service models (IaaS, PaaS, SaaS) and deployment models (Public, Private, Hybrid) and the key components of a cloud infrastructure (VMs, Networking, Storage - File, Block, Object, CDN). We also cover emergent cloud trends and practices including - Hybrid Multicloud, Microservices, Serverless, DevOps, Cloud Native and Application Modernization. And we go over the basics of cloud security, monitoring, and different job roles in the cloud industry. Even though this course does not require any prior cloud computing or programming experience, by the end of the course, you will have created your own account on IBM Cloud and gained some hands-on experience by provisioning a cloud service and working with it. This course is suitable for a large variety of audiences - whether you are an executive / manager / student who wants to become familiar with cloud computing terminology and concepts, or someone who wants foundational grounding in cloud computing to start a career in this field or become a cloud practitioner - such as a cloud engineer, developer, analyst, etc. The completion of this course also makes you eligible to earn the Cloud Computing Core IBM digital badge. More information about the badge can be found here: <https://www.youracclaim.com/org/ibm/badge/introduction-to-cloud-computing>

**COURSE**2

[Introduction to Web Development with HTML, CSS, JavaScript](https://www.coursera.org/learn/introduction-to-web-development-with-html-css-javacript?specialization=ibm-full-stack-cloud-developer)

**4.5 stars** 355 ratings • 82 reviews

Want to take the first steps to become a Cloud Application Developer? This course will lead you through the languages and tools you will need to develop your own Cloud Apps.

Beginning with an explanation of how internet servers and clients work together to deliver applications to users, this course then takes you through the context for application development in the Cloud, introducing front-end, back-end, and full-stack development. You’ll then focus on the languages you need for front-end development, working with HTML, CSS, and JavaScript. Finally, you will discover tools that help you to store your projects and keep track of changes made to project files, such as Git and GitHub.

**COURSE**3

[Getting Started with Git and GitHub](https://www.coursera.org/learn/getting-started-with-git-and-github?specialization=ibm-full-stack-cloud-developer)

Collaboration and social coding are crucial parts of contemporary Software Engineering practices and the DevOps culture. In this course, you’ll be introduced to collaborative version control and popular Git platforms.

You will explore key Git concepts such as branching and repositories, as well as the use of Git commands. You will also learn and practice various Git concepts such as forking, cloning and merging workflows. You will learn to use GitHub to work effectively as a team, and perform common Git operations, such as Pull Requests, from both the Web UI and command line. Developed and taught by experienced IBM practitioners, in this course you’ll gain vital skills and hands-on experience using Git and GitHub. Each module contains hands-on labs for you to apply and practice what you learn. The course wraps up with a final project where you will start building your portfolio by creating and sharing a public/open-source GitHub project. All hands-on activities in this course can be performed using web-browser based tools and interfaces. Installation of any specialized software is NOT required on your own computer in order to complete the course.

**COURSE**4

[Developing Cloud Native Applications](https://www.coursera.org/learn/developing-cloud-native-applications?specialization=ibm-full-stack-cloud-developer)

**4.2 stars** 133 ratings • 41 reviews

Do you want to learn about developing applications that are cloud native right from conception to implementation? In this course, you’ll begin with some crucial cloud concepts. Then, you will dive into specific tools and techniques for developing cloud native apps. Learning about the Cloud Native Computing Foundation, the significance of hybrid cloud infrastructures, and how they affect cloud app developers will be covered You will then look at two key areas of cloud thinking: modernization and continuous integration/continuous delivery.

* **COURSE**5

[Developing Cloud Apps with Node.js and React](https://www.coursera.org/learn/node-js?specialization=ibm-full-stack-cloud-developer)

**4.0 stars** 110 ratings • 34 reviews

In this course, you will focus on server-side JavaScript and frameworks. You will discover ways to make development faster and easier in web browsers and embedded systems. You may ask, what is the relevance of developing cloud applications with Node.js and React?

In 2020, the Stack Overflow survey of developers reported that 51.4% of respondents are using Node.js, making it number one in the category of Other Frameworks, Libraries, and Tools. In the Most Loved, Dreaded, and Wanted category for Other Frameworks, Libraries, and Tools, Node.js is in the top ten at 66.8%. In the Web Frameworks category, React is number two at 35.9% in usage and 66.9% in the Most Loved, Dreaded, and Wanted category for Web Frameworks. This course is designed to help you achieve success in this fast-growing cloud computing area. You may be an IT person looking to step up in your career, a new graduate seeking to establish a solid skillset to score a job in the cloud or web development, an IT decision-maker who needs to manage more cloud-centric projects, or someone in another field who wants to be able to talk about cloud computing knowledgeably. Note: It is highly recommended that you complete the Introduction to Web Development with HTML, CSS, JavaScript course in the IBM Full Stack Cloud Developer Professional Certificate prior to starting this course. The course requires prior basic knowledge of HTML5, CSS, JavaScript, Git, and fundamental concepts in Cloud programming.

SHOW ALL ABOUT DEVELOPING CLOUD APPS WITH NODE.JS AND REACTSHOW ALL

**COURSE**6

[Introduction to Containers w/ Docker, Kubernetes & OpenShift](https://www.coursera.org/learn/ibm-containers-docker-kubernetes-openshift?specialization=ibm-full-stack-cloud-developer)

**4.4 stars** 286 ratings • 93 reviews

After completing this course, you will be able to build applications in a cloud native way using containerization tools and technologies, and deploy your applications in any public, private or hybrid cloud at incredible scale. This course introduces you to containers and explains how containers differ from virtual machines. It also covers the importance of containers in cloud computing, as well as the emerging ecosystem of related technologies such as Docker, Kubernetes, Red Hat OpenShift, and Istio.

Throughout the course you will apply what you learn with hands-on labs. From getting started with Docker, to orchestration and scaling with Kubernetes, and simplifying deployments with OpenShift. The labs are performed using your web browser on IBM Cloud and Skills Network Labs environments, that are made available to you at no charge. in the project at the end of the course you will build a container image and deploy and scale it on Cloud using OpenShift. Containerization is likely the most significant invention in IT since the introduction of virtualization. Open source projects like Kubernetes and products like Red Hat OpenShift have become standards for people looking to deploy and manage containers at scale. Everyone from small startups to large multinational corporations is transitioning to these technologies, and they are looking for people who are skilled in these areas. This course is of interest to anyone who wants to be a cloud practitioner - cloud developers, cloud architects, cloud system engineers, devops engineers, cloud networking specialists and many other roles. The material also serves the needs of those who perform the tasks of advising, consulting, building, moving and managing cloud solutions. There are no hard requirements needed to be able to take this course other than basic computer literacy, and a foundation level understanding of Cloud Computing.

**COURSE**7

[Python for Data Science, AI & Development](https://www.coursera.org/learn/python-for-applied-data-science-ai?specialization=ibm-full-stack-cloud-developer)

**4.6 stars** 25,961 ratings • 4,324 reviews

Kickstart your learning of Python for data science, as well as programming in general, with this beginner-friendly introduction to Python. Python is one of the world’s most popular programming languages, and there has never been greater demand for professionals with the ability to apply Python fundamentals to drive business solutions across industries.

This course will take you from zero to programming in Python in a matter of hours—no prior programming experience necessary! You will learn Python fundamentals, including data structures and data analysis, complete hands-on exercises throughout the course modules, and create a final project to demonstrate your new skills. By the end of this course, you’ll feel comfortable creating basic programs, working with data, and solving real-world problems in Python. You’ll gain a strong foundation for more advanced learning in the field, and develop skills to help advance your career. This course can be applied to multiple Specialization or Professional Certificate programs. Completing this course will count towards your learning in any of the following programs: IBM Applied AI Professional Certificate Applied Data Science Specialization IBM Data Science Professional Certificate Upon completion of any of the above programs, in addition to earning a Specialization completion certificate from Coursera, you’ll also receive a digital badge from IBM recognizing your expertise in the field.

**COURSE**8

[Python Project for AI & Application Development](https://www.coursera.org/learn/python-project-for-ai-application-development?specialization=ibm-full-stack-cloud-developer)

**4.4 stars** 132 ratings • 26 reviews

This mini-course is intended to apply foundational Python skills by implementing different techniques to develop applications and AI powered solutions. Assume the role of a developer and unit test and package an application with the help of multiple hands-on labs. After completing this course you will have acquired the confidence to begin developing AI enabled applications using Python, build and run unit tests, and package the application for distribution.

PRE-REQUISITE: \*\*Python for Data Science, AI and Development\*\* course from IBM is a pre-requisite for this project course. Please ensure that before taking this course you have either completed the Python for Data Science, AI and Development course from IBM or have equivalent proficiency in working with Python and data. NOTE: This course is not intended to teach you Python and does not have too much instructional content. It is intended for you to apply prior Python knowledge.

**COURSE**9

[Developing Applications with SQL, Databases, and Django](https://www.coursera.org/learn/developing-applications-with-sql-databases-and-django?specialization=ibm-full-stack-cloud-developer)

**4.5 stars** 55 ratings • 18 reviews

The essentials of application development are accessing, processing, and presenting data. Data is stored in various databases, either on-premise or on the cloud, and developers will need to learn how to talk to them via programming languages.

In this course, you will be introduced to some fundamental database concepts. You will learn the basics of SQL, a simple and powerful programming language for querying and managing data. And you will learn about cloud database fundamentals and get hands-on cloud database experiences. In addition to SQL, you will discover how Object-Relational Mapping (ORM) allows you to use Object-Oriented Programming (OOP) languages to work with databases. You will gain full-stack Django skills by creating a Django web app to persist, process, and present data. And you will learn about cloud app platform fundamentals and get hands-on experience deploying your Django web app on the cloud. Course Learning Objectives: - Describe what is a database and how to model data - Compose SQL queries to insert, select, update, delete data in a database - Understand Object Relational Model (ORM) - Employ Django to develop database-powered applications - Deploy your Django app on the cloud Prerequisites: - GitHub - HTML & CSS – Python

**COURSE**10

[Application Development using Microservices and Serverless](https://www.coursera.org/learn/applications-development-microservices-serverless-openshift?specialization=ibm-full-stack-cloud-developer)

**4.6 stars** 31 ratings • 6 reviews

Are you a developer ready to explore serverless application development? This intermediate-level course is for you!

Begin with an understanding of how serverless benefits developers, learn when to use serverless programming, serverless deployment models, and discover its top use cases and design patterns. You’ll also discover how serverless supports continuous integration and continuous delivery (CI/CD) and microservices integration. Hands-on labs reinforce serverless programming concepts for creation, deployment, and invocation of cloud-based functions—including the deployment of microservices using OpenShift and Istio. Complete the course with the confidence to build a multi-tier web app that uses IBM Cloud Functions, OpenShift, Istio, and more.

**COURSE**11

[Full Stack Cloud Development Capstone Project](https://www.coursera.org/learn/ibm-cloud-native-full-stack-development-capstone?specialization=ibm-full-stack-cloud-developer)

**4.5 stars** 28 ratings • 5 reviews

In this project you will demonstrate the skills that you have mastered in cloud native application development. You will apply your new knowledge to a real-life challenge and use your expertise to develop a successful solution.

The project provides you with an opportunity to solidify your full stack proficiency. As you design a dynamic user experience, you will work with GitHub actions to build, test, and deploy your application. You will develop frontend pages, add user administration, build actions for database operations, create backend services, make connections with cloud native APIs, and launch CI/CD pipelines. You will boost your capabilities with cloud native services, JavaScript, Django, JSON, IBM Cloud Foundry, Python, and Kubernetes. Then you will devise a solution for managing the containerized deployment of your application. When you complete this project, you will have a working cloud native application showpiece that will impress potential employers.

**COURSE**12

[Full Stack Software Developer Assessment](https://www.coursera.org/learn/full-stack-software-developer-assessment?specialization=ibm-full-stack-cloud-developer)

This is the final course in the Full Stack Professional Certificate. It will test your knowledge and the skills you’ve acquired so far. This course contains the graded final examination covering content from nine of the eleven courses in the certificate.

You will be assessed on topics such as core cloud computing concepts; languages such as HTML, CSS, JavaScript, and Python; frameworks such as Node.js and React; and backend technologies such as Docker, Kubernetes, OpenShift, SQL, Django, and Serverless.