BOARD INFINITY

COURSE 1 OF 3 · GRAPHQL MASTERY SPECIALIZATION

GraphQL Fundamentals – Design APIs, Schema, Frontend Integration

Full course syllabus - every module, video lesson, reading and assignment, from your first query to schemas, resolvers, Apollo Client and the careers beyond.

Board Infinity
Instructor · Offered on Coursera

3	36	12	1 week
Modules	Video lessons	Assignments	At 10 hours a week

INSIDE THE COURSE

01	Understanding GraphQL Fundamentals	3 hours to complete
02	Exploring the Schema Language	3 hours to complete
03	Arguments, Variables, and Tooling	3 hours to complete

Enroll on Coursera

https://www.coursera.org/learn/graphql-fundamentals-design-apis-schemas-integration

01 ABOUT THE COURSE

From REST to your first GraphQL API.

This course takes you beyond REST to build efficient, modern APIs with GraphQL from the ground up. Across three modules you learn the basics and write your first query, design schemas with custom types and resolvers, then make queries dynamic and connect a React frontend with Apollo Client.

Everything is delivered through short video lectures, readings and graded quizzes - 36 videos, 3 readings and 12 assignments in all. No prior GraphQL experience is required.

WHO IT'S FOR

Front-end developers

Fetching exactly the data your UI needs, with Apollo Client.

Back-end developers

Moving beyond REST to design flexible, typed APIs.

Full-stack developers

Connecting client and server through a single GraphQL layer.

Students and beginners

No prior GraphQL experience is required to begin.

WHAT YOU'LL LEARN

01 **Build GraphQL APIs** Modules 1-2

Build flexible APIs with Apollo Server and SDL, using custom types, resolvers and a modular schema

02 **Write queries and mutations** Modules 1-2

Write and test efficient queries, mutations and nested queries, following performance best practices

03 **Connect a React frontend** Module 3

Connect React and other frontends to GraphQL with Apollo Client for scalable data communication

04 **Monitor and debug APIs** Modules 1-3

Test and debug your APIs with Apollo Studio, GraphQL Network Inspector and GraphQL Voyager

02 SYLLABUS

Three modules, one working GraphQL API.

1 week to complete at 10 hours a week. Flexible schedule - learn at your own pace.

01 Understanding GraphQL Fundamentals

APIs, REST vs. GraphQL, core architecture and your first query

3 hours
14 videos

BY THE END OF THIS MODULE YOU CAN

- ✓ Explain what an API is and how GraphQL differs from REST
- ✓ Identify the advantages of GraphQL and where it shines
- ✓ Describe schemas, types, fields, queries, mutations and subscriptions
- ✓ Set up a basic GraphQL server and test your first query

CONTENTS: 14 videos (55 min) · 1 reading (30 min) · 4 assignments (105 min) · 1 plugin (5 min)

TOPICS: What is an API? · REST vs. GraphQL · Schema, Types and Fields · Client-Server Flow · Your First Query · Quick Course Check-In (plugin)

You'll leave with: a clear model of how GraphQL works, and a running server that answers your first query.

02 Exploring the Schema Language

SDL, custom types, resolvers and efficient data fetching

3 hours
10 videos

BY THE END OF THIS MODULE YOU CAN

- ✓ Define custom types and fields with the Schema Definition Language
- ✓ Distinguish between query and mutation types
- ✓ Write resolvers and attach them to schema fields
- ✓ Handle nested relationships, aliases and fragments efficiently

CONTENTS: 10 videos (54 min) · 1 reading (30 min) · 4 assignments (105 min)

TOPICS: Custom Types and Fields · Query vs Mutation Types · Resolvers · Nested Relationships · Aliases and Fragments · Avoiding Over-fetching

You'll leave with: the ability to design a schema and write the resolvers that connect it to real data, without over-fetching.

03

Arguments, Variables, and Tooling

Dynamic queries, Apollo Client with React, and GraphQL tooling

3 hours

12 videos

BY THE END OF THIS MODULE YOU CAN

- ✓ Use arguments and variables to make queries dynamic
- ✓ Apply best practices when writing GraphQL queries
- ✓ Set up Apollo Client with React to consume a GraphQL API
- ✓ Inspect APIs with GraphQL Network Inspector and Voyager

CONTENTS 12 videos (42 min) · 1 reading (30 min) · 4 assignments (105 min)

TOPICS Arguments in Queries · Variables in GraphQL · Query Best Practices · Apollo Client · Apollo with React · GraphQL Network Inspector · GraphQL Voyager · Common Pitfalls

You'll leave with: a GraphQL API you can query dynamically from a React frontend, and the tools to inspect and debug it.

03 TOOLS & SKILLS

The themes that run through the course.

GraphQL core concepts

Core theme

APIs, REST vs. GraphQL, and the architecture of schemas, types, fields, queries, mutations and subscriptions.

In this course: Module 1 builds the foundation and your first working query.

Schema design & resolvers

Data layer

The Schema Definition Language, custom types, query and mutation types, resolvers and data sources.

In this course: Module 2 adds nested relationships, aliases and fragments.

Apollo tooling

Tools

Apollo Server to build, GraphiQL and Apollo Studio to test and monitor, plus Network Inspector and Voyager.

In this course: Tools are used from the first server setup to the final module.

Frontend integration

Integration

Arguments and variables for dynamic queries, then Apollo Client to connect React to your GraphQL API.

In this course: Module 3 sets up Apollo with React in two hands-on parts.

SKILLS YOU LEAVE WITH

GraphQL basics

- ✓ APIs & REST vs. GraphQL
- ✓ Schemas, types & fields
- ✓ Queries, mutations, subscriptions
- ✓ GraphQL server setup

Schema design

- ✓ Schema Definition Language
- ✓ Resolvers & data sources
- ✓ Nested queries & fragments
- ✓ Avoiding over-fetching

Integration & tools

- ✓ Arguments & variables
- ✓ Apollo Client with React
- ✓ Testing with Apollo Studio
- ✓ Network Inspector & Voyager

04 CERTIFICATE & CAREER

Finish with a shareable certificate.

Add it to LinkedIn

Add this credential to your LinkedIn profile, resume, or CV.

Share it anywhere

Share it on social media and in your performance review.

Earned, not attended

Awarded on completion of the graded quizzes and assessments in all three modules.

Course 1 of 3

The first course of the GraphQL Mastery Specialization from Board Infinity.

ROLES THE COURSE PREPARES YOU FOR

GraphQL Developer · API Developer · Back-End Developer · Front-End Developer · Full-Stack Developer · React Developer

Board Infinity

Instructor · Offered on Coursera

Beginner level · Taught in English · 12 assignments · Flexible schedule

Ready to build your first GraphQL API?

Enrollment, lessons, grading and the certificate all happen on Coursera.

Enroll on Coursera

Course page: coursera.org/learn/graphql-fundamentals-design-apis-schemas-integration

Want a coach alongside the course?

Board Infinity 1:1 coaching is a separate, optional offering - it is not part of the Coursera course. Details: https://www.boardinfinity.com/career-coaching/

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