



Marshall Wace Quant Internship Application Guide

Hello,

Thank you for your interest in the Quant Internship Programme at Marshall Wace. We understand that interview processes are often daunting, which is why we aim to provide a clear and transparent process to help you prepare effectively and perform at your best.

We strongly recommend that you familiarize yourself with our business, values, and mission as part of your preparation. You can find this information on our website (www.mwam.com).

Our interview process is designed to be comprehensive, covering a broad spectrum of skills, both technical and behavioural. We strive to make the process as engaging as possible, providing an opportunity for us to learn about each other.

We will review applications on a rolling basis, with tests being sent as applications are reviewed. Everyone will have seven days to complete the test from the date it is sent. We are **unable to offer extensions** due to the high volume of applications that we receive. **Please be aware that the testing platforms are very literal, meaning the tests will time out for submission 168 hours from when they are sent.**

Key dates for the process are:

- Applications Close: 22nd October, 17:00 BST
- Tests Sent: on a rolling basis with 7 days to complete each.
- Human Capital Screening calls: 22nd September – 7th November
- Video interviews: 6th October – 14th November
- Onsite Interviews – 20th October – 21st November
- Final Round Management Interviews: to be arranged individually

We appreciate your interest and look forward to your application. Best of luck!

Best regards,
Marshall Wace Recruitment Team

Marshall Wace is an equal opportunity employer. Individuals seeking employment are considered without regard to race, colour, religion, national origin, age, sex, marital status, ancestry, physical or mental disability, veteran status, sexual orientation, or any other category protected by applicable law.

Here, we provide some basic information about each stage of the application process. You can also find example questions from previous years in the appendix for reference.

Application:

We're excited to have you apply! Please submit your application through our website just once. To ensure a smooth process, make sure your initial submission is complete and accurate, as we can only process one application per candidate each season. Applying for multiple roles might slow down the review of your application.

While a cover letter isn't necessary, we do need a resume to move forward. Applications without a resume won't be considered. All resumes are reviewed by a human.

Stage One: Initial tests

As part of our initial assessment, you'll be invited to complete three tests. If your application moves forward, you'll first receive the Codility test, which you'll have 7 days to complete. The test will automatically time out 168 hours after it's sent.

If you pass the Codility test, you'll then receive the Technical exam, which also has a 7-day completion window from when it's sent. If you pass the Technical, you will be invited to complete the Data exam which also has a 7-day limit.

We understand that life can be busy, but due to the number of applications we receive, we're unable to offer extensions for these tests.

By taking these tests, you agree to keep the content confidential. This means not collaborating with others, sharing questions, or taking screenshots. We also kindly ask that you avoid using large language model chatbots or search engines, and we have measures in place to ensure fairness. If we find any form of cheating or sharing of details, we won't continue with your application.

If you need any reasonable adjustments (like for dyslexia), please let us know during your application so we can provide the right version of the test for you.

To support you further details on all three tests are provided on the next page.



Codility Test

This is a short, 60-minute programming test designed to assess your programming skills. Advanced knowledge of any language is not required. Basic coding techniques and the ability to write and use simple functions are sufficient. Languages supported can vary based on the question but, typically the following are supported by Codility: C, C++, C#, Go, Java 8, Java 11, JavaScript, Kotlin, Lua, Objective-C, Pascal, PHP, Perl, Python, Ruby, Scala, Swift 4, Visual Basic.

You can complete this test on your own IDE and paste your answers into Codility. However, we ask that you do not use LLMs. If we later discover that you have, we will not proceed with your application.



System requirements: Reliable internet connection.

Preparation Tips:

- Practice in your environment: Set up your preferred IDE for coding and practice solving problems in it.
- Ensure your internet connection is stable to avoid any disruptions during the test.

Technical Exam

The Technical Assessment is administered via Correlation-One and lasts for 60-minutes. This assessment covers topics including probability theory, statistics, regression analysis, general mathematical topics such as algebra, matrices, optimization, and algorithm design.

System requirement: Reliable internet connection.

Preparation Tips:

- Review Fundamental Concepts: Refresh your understanding of basic programming techniques and key mathematical concepts such as probability, statistics, and algebra.
- Ensure your internet connection is stable to avoid any disruptions during the test.

Data Exam

The Data Exam is administered via CorrelationOne and lasts for 45 minutes. It is designed to assess your ability to perform 'light' quant research. After downloading several CSV files, you will be asked questions that can be answered by performing basic analysis on the data, using any programming language you have available.

System requirements: Reliable internet connection, 10MB of storage space for CSV files, and a data manipulation tool of your choice, such as Python, Matlab, or R.

Stage Two: Human Capital (HC) Interview

If you are successful in the online tests, you'll have a 30-minute Zoom call with a member of our Human Capital (HC) team. This interview helps us understand your motivations and fit for the role.

What to Expect:

- **Motivation Questions:** We'll discuss why you're interested in the internship and how it aligns with your career goals.
- **Competency Questions:** Expect questions about your past experiences so we can explore how you exhibit our company values and the core competencies we look for.
- **Your Questions:** Feel free to ask about the role, team, or company. We want this to be a two-way conversation.

Preparation Tips:

- **Reflect on experiences:** Be ready to share specific examples that highlight your skills.
- **Research us:** Understand our company values and recent projects to tailor your responses.
- **Technical Setup:** Ensure your Zoom setup is ready, with a stable internet connection and working camera and microphone.

Stage Three: Project Presentation Interview (via Zoom)

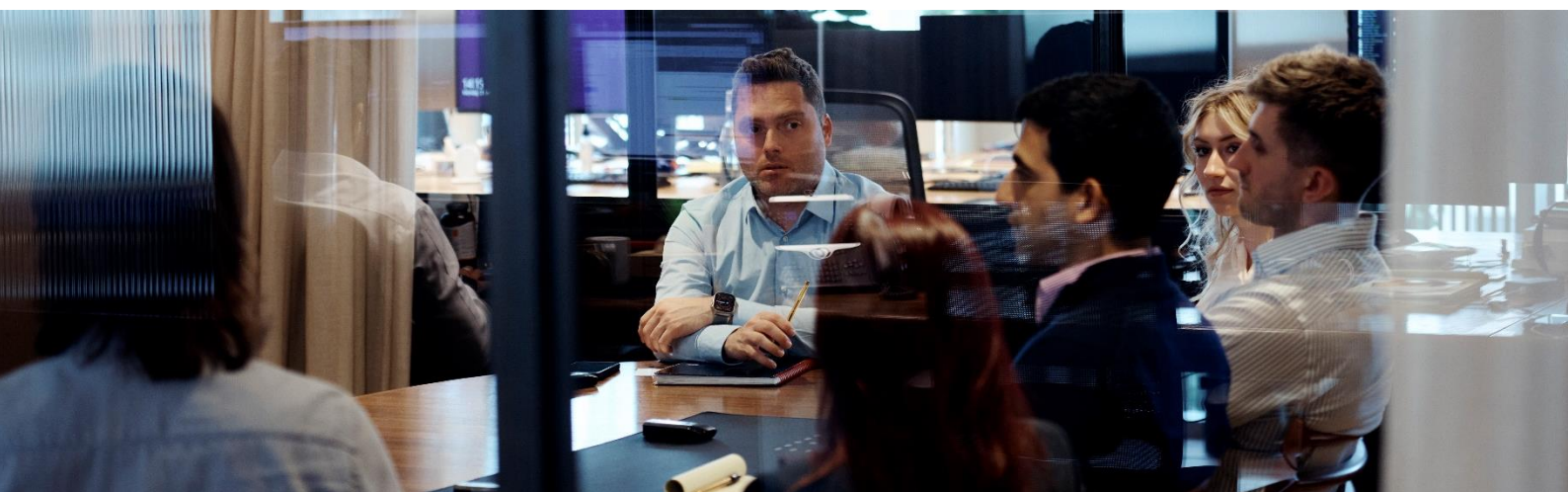
For this 60-minute interview we ask that you prepare a presentation about a project that you have previously worked on that you think best shows your technical strengths. We ask that you give us an overview of the whole project, covering where the idea came from, what you did and how it worked.

The topic you choose is entirely up to you but should show your technical ability. For example, this could be a part of a University assignment, your PhD thesis or an independent project that you worked on for fun.

Your initial presentation should be around 15 to 20 minutes, leaving the rest of the time for questions. You should be prepared for the interviewer to dive into any aspect of your project as a way of understanding your technical depth around the subject.

Preparation tips:

- **Preparing a few slides** to keep you on topic and support the interviewers understanding of your project.
- **Know your project at great depth** – the interviewers may ask more details about any aspect of it to ascertain your technical depth.
- **Technical Setup:** Ensure your Zoom setup is ready, with a stable internet connection and working camera and microphone.



Stage Four: Onsite Interviews

We will invite successful candidates to our London office to complete two types of interview.

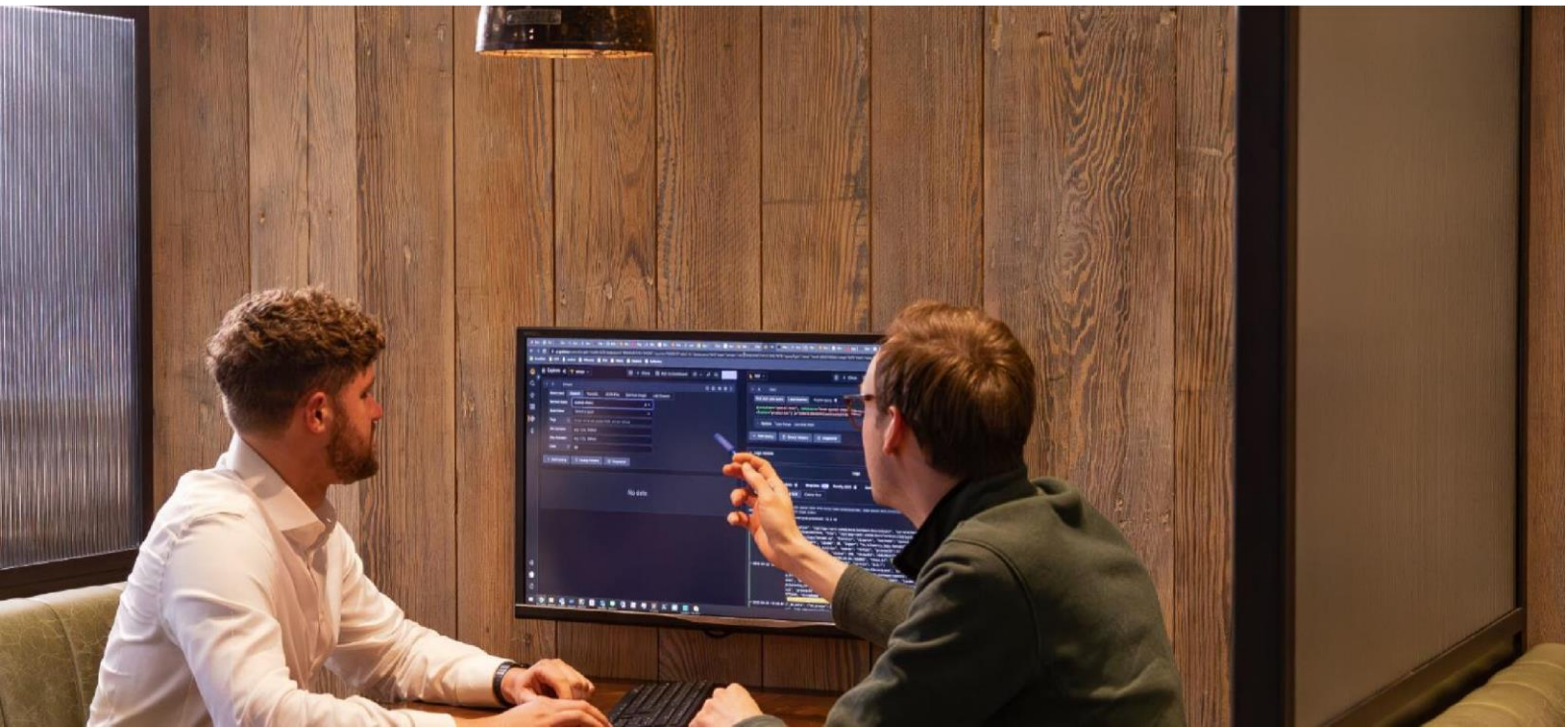
Brainteaser interview

In this 50-minute interview, you will be asked to solve two mathematical brainteasers. We are interested in understanding your thought process and approach, rather than just the final answer.

Management Interviews

You will meet two or three managers at a time for an informal introduction. This is an opportunity for you to gain a deeper understanding of our team structures, our management style, and for the managers to assess how well you would fit into their team.

Additionally, we will arrange for you to shadow someone in the Quant teams to give you a sense of what the day-to-day role entails. This is a valuable opportunity to gain firsthand experience of the role and the working environment.



Offers and Contracts

We aim to deliver all our offers within two weeks of the management interviews. Typically, offers will be shared on a Zoom call with the Human Capital Team. They will walk you through the offer details including your team allocation.

You will then receive a contract in the following days to review and sign. We will communicate any deadlines for accepting with you on the aforementioned call.

FAQ:

I receive extra time on exams for a personal reason (dyslexia etc), can I also have extra time in the tests/interviews?

When applying for the position, you will be asked if you need to request extra time. If you have informed us there, we will send you the extra time tests. If you did not declare when applying but require extra time, please let us know before opening the tests. We will then cancel the previous invites and send you new ones. If you open a test before alerting us, we will not be able to send you a new link. This is to ensure fairness across all candidates.

If I don't pass the interview/ tests, can I be reconsidered? / Can I resit the tests/ interview?

We do not reconsider applications within the same annual recruitment cycle. However, we are happy to reconsider for the following year's programme if you remain eligible (which typically opens in September).

When can I expect feedback?

We aim to provide feedback or an update within 10 working days of their previous stage. However, please let us know if you are still waiting to hear from us beyond this, we're human and a very small team managing many candidates so mistakes can happen.

In some stages, we may temporarily put your application on hold while we work through a backlog of applications. If we have to delay your feedback, we will communicate this with you and aim to provide information as soon as possible.

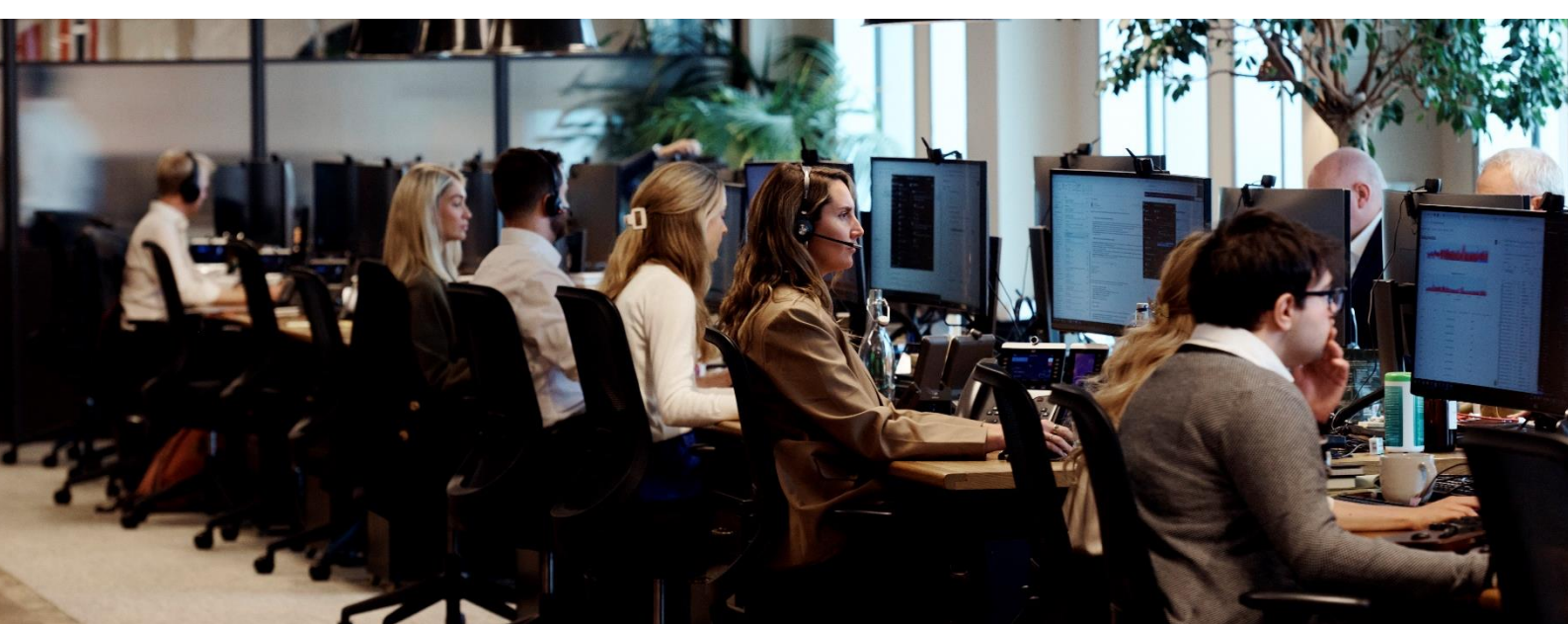
I can no longer make my scheduled interview, can I rearrange?

We will always aim to rearrange your interview where possible – you just need to contact the recruitment team. We do however ask for at least 48-hours' notice unless it is an emergency.

Is there an advantage to interviewing later?

No, we progress candidates on a first-come, first-served basis when they pass the test so this could actually go against you. Also, we have a very large bank of questions, so it's unlikely you'll be asked the same question(s) as any contacts you may have who are also interviewing. This is to ensure a fair and unbiased process for all candidates.

You should also know that we do not expect you to spend much time on additional preparation for the technical interviews. The questions are designed to deep-dive into your existing knowledge, not what you have recently revised.



Appendix

Example Questions

Below you can find some example questions from previous iterations of the Quant Associate Programme. These questions will not be used again this year, they are to give you an idea of the sorts of questions you may be asked.

Stage One: Initial Test

Technical Test

- 1) [3 marks] A researcher takes a random sample of 25 fourteen-year-old students from a large population and gives them an IQ test. The population mean IQ is known to be 100. The first student is found to have an IQ of 150. What is your expectation for the average IQ for the sample of 25 students?
- 2) [3 marks] You have a table of items containing three columns of length n. Columns A and B contain only integers, while Column C contains only strings, all of which are 6 characters long.

Column A	Column B	Column C
134954	24	SROFFS
35	876	LAOGPW
9230	12	AOGPQL
6	248	MQSFAI
6	2	AOGPQL
...

You use 'quicksort' to sort column A. What is the average time complexity when sorting n elements?

- 3) [3 marks] Find all solutions to:

$$(x^2 + 7x + 11)^{x^2+x-30} = 1, \quad x \in \mathbb{R}.$$

- 4) [5 marks] A, B, C, D, E, F, G, H are distinct digits within the range 0-9 (inclusive). Work out their values such that the following two arithmetic equations hold: $AA \times BB = CDE$, $BB \div AA = F \div GH$

Stage Four: On-site interviews

You can find some example questions for two interviews below. Due to the nature of the interviews we cannot provide examples or any more guidance on the case study or project presentation interviews.

Brainteaser interview

We each take turns to roll a dice. Each time a number comes up which had not previously come up, we cross it out from the list of numbers 1,2,3,4,5,6. The winner is the player to cross out the last number.

Would you prefer to play first or second?