

## PHAROS Training Series - Course 9 "RAG End-to-End: Architecture, Retrieval, Generation and Evaluation"

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### **Hands-on 3: semantic search, BM25/hybrid retrieval and reranking**

*Tuesday, 7 July 2026 13:30 (25 minutes)*

This third hands-on tutorial lets participants compare retrieval strategies directly in the Colab notebook. Using representative Greek-language public-service questions, participants will run semantic search, keyword-based search and hybrid retrieval over the same indexed dataset. They will inspect returned chunks, compare ranking behaviour and identify cases where one retrieval strategy succeeds while another misses important evidence. The session also introduces practical analysis of false positives, missing evidence and noisy context. Participants will apply reranking to candidate chunks and compare the Top-K context before and after reranking, observing how ordering affects the evidence available to the generator. The tutorial encourages participants not to trust retrieval scores blindly, but to read and evaluate the retrieved passages. By the end, participants will understand how to choose retrieval strategies for different query types and how to diagnose retrieval weaknesses systematically. These observations support later grounding, citation checking and end-to-end answer evaluation activities in the notebook.

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