Data Science

Your expertise is needed for developing new courses with a priority for the skills **highlighted in red**. Submit your course idea in the Call for Proposal.

Skill *(ranked by urgency and number of respondents)*	**What a course should teach** *(those currently missing from the portfolio highlighted in red)*	**Existing courses in the EPFL Extension School portfolio** *(links to webpages)*
Apply AI to improve technical or business processes	End-to-end framing of AI opportunities; mapping processes; choosing appropriate AI techniques; cost–benefit and risk; implementation roadmaps; change management; **industry specific use cases**	AIML Essentials; AIPM; ENID; MIDA; Innovate with AI and Tech
Develop and deploy machine learning algorithms	Supervised/unsupervised methods; model selection; evaluation; **basic MLOps concepts (versioning, deployment, monitoring); ethical considerations.**	ADS:ML (C3&4)
Analyse & visualise data for decision-making	Exploratory data analysis; statistical thinking; dashboards and visual encoding principles; storytelling with data; communicating uncertainty to non-experts.	ADS:CV; ADS:ML (C1&2)
Acquire, organise and prepare diverse data sets for effective use	Data acquisition from files, databases and APIs; data cleaning (missing values, outliers, inconsistencies); data integration from multiple sources; building reusable, well-documented data pipelines.	FDS, ADSML
Implement gen AI models to innovate, automate and boost productivity	**Foundational knowledge of LLMs; and generative models; prompt design; automating tasks (reports, code, content);** risks (hallucinations, IP, bias); **governance and guardrails (GENAI specific).**	AIML Essentials; AIPM; ENID; Innovate with AI and Tech
Write and debug basic scripts to automate tasks	Fundamentals of Python (syntax, control flow, functions), working in notebooks, writing small automation scripts for file handling, data cleaning and reporting; debugging techniques and good coding practices.	ADS:ML (C1&2)
Identify and interpret data types for industry applications	Types of data (structured, semi-structured, unstructured, time-series, text, image, sensor data); how they are stored and accessed; implications for analysis, modelling and governance; mapping typical industrial use cases to appropriate data types.	ADS:ML (C1&2)