Overview Learning Objectives CEBMa course modules

Chapter	After completing this module, you will be able to ...
Module 1: *The Basic Principles*	Summarize the basic principles of evidence-based management; Explain why we need evidence-based management; Explain what counts as evidence; Determine which sources of evidence were consulted; Assess (coarsely and in general terms) the quality of evidence; Determine whether the 'best available' evidence was used in a decision-making process; Correct common misconceptions about evidence-based management.
Module 2: *Ask*	Identify (hidden) claims/assumptions regarding a practical issue; Determine whether an (assumed) problem is sufficiently clear; Determining whether there is sufficient evidence to support the (assumed) problem; Determine whether the preferred solution is sufficiently clear; Determine whether there is sufficient evidence (from multiple sources) to support the preferred solution.
Module 3: *ACQUIRE - evidence from practitioners*	Determine what evidence to acquire from practitioners; Determine how to prevent selection bias when acquiring evidence from practitioners; Determine the best method(s) to acquire evidence from practitioners; Determine whether bias could have affected evidence from practitioners; Formulate clear, unambiguous, and unbiased questions.
Module 4: *APPRAISE - evidence from practitioners*	Assess whether professional experience is valid and reliable; Grade the trustworthiness of professional experience; Recognize how system 1 thinking influences valid and reliable professional expertise; Determine whether a decision is based on system 1 or system 2 thinking; Recognize common cognitive biases; Identify ways cognitive biases can be overcome; Critically appraise evidence from practitioners.
Module 5: *ACQUIRE - scientific evidence*	Determine the most relevant online research database(s) given the question; Determine whether a journal is peer reviewed; Determine the most important PICOC terms; Search the Internet for relevant alternative and/or related terms; Search Google Scholar for related or broader academic terms; Test search terms to identify terms that yield the most relevant results; Apply Boolean operators to specify a search query; Use the history function to combine search queries; Apply methodological filters to identify meta-analyses and/or longitudinal/controlled studies; Narrowing search results by adding additional PICOC terms; Limit a search result by limiting the date range.
Module 6: *A short introduction to science*	Assess whether a study was conducted according to the scientific method; Recognize pseudo-science; Assess whether a statistically significant finding is of practical relevance; Assess whether methodological bias may have affected the results; Determine whether confounders may have affected the results; Assess whether a placebo effect may have affected the results; Identify moderators or mediators that may have affected the results; Distinguish quantitative research methods from qualitative research methods; Determine a study's research design; Efficiently read a research paper.

Module 7: *APPRAISE - scientific evidence*	Assess the impact of an effect size; Assess whether a statistically significant finding is of practical relevance; Assess whether a confidence interval is sufficiently narrow; Assess whether an outcome was measured in a reliable way; Distinguish cause-and-effect questions from non-effect questions; Determine a study's research design; Assessing whether a study's research design is appropriate given the research question (methodological appropriateness); Assessing a study's methodological quality; Grading a study's trustworthiness on the basis of its methodological appropriateness and quality; Summarizing a study's main findings, weaknesses, and overall trustworthiness.
Module 8: *ACQUIRE - organizational evidence*	Explain the added value of organizational evidence; Distinguish data, from information and evidence; Determine what organizational evidence to acquire; Determine what types of organizational evidence are available and where they are kept; Distinguish 'normal' data from Big Data; Determine where to find relevant organizational evidence; Determine whether the evidence concerns operational data, metrics, KPIs or benchmarks; Explain the difference between descriptive and inferential measures; Identify potential barriers to acquire organizational evidence.
Module 9: *APPRAISE - organizational evidence*	Determine whether a logic model was used to collect and analyze evidence from the organization; Assess whether organizational data are relevant; Identify steps in the collection and processing of data that could introduce risk of inaccurate data; Determine whether contextual information is missing; Determine whether there could be measurement error; Assess whether there could be a small number problem; Determine whether a metric is a good representation of the data; Interpret a metric's standard deviation; Assess whether a graph represents the data in a valid and reliable way; Interpret a correlation or regression coefficient; Determine whether a correlation- or regression coefficient is practically relevant; Assess whether there are outliers that may distort the evidence; Assessing whether range restriction may have affected the evidence; Assess whether a confidence interval is sufficiently narrow.
Module 10: *ACQUIRE - stakeholder evidence*	Identify and assess evidence from stakeholders; Identify and distinguish different types of stakeholders; Determine which stakeholders could be affected by a decision; Determine which stakeholders could affect a decision, its implementation, or its outcome; Identify the most relevant stakeholders; Determine how to acquire evidence from stakeholders in a valid and reliable way.
Module 11: *APPRAISE - stakeholder evidence*	Explain why stakeholders' subjective feelings and perceptions should always be taken into account; Determine the practical and/or ethical impact a decision may have on stakeholders; Determine whether relevant stakeholders can freely express their views and feelings regarding a (proposed) decision; Determine whether there could have been selection bias in the way evidence from stakeholders was obtained; Determine whether the evidence from stakeholders is sufficiently representative.
Module 12: *AGGREGATE*	Explain what proof, evidence, chance, and 'conditional' probability means; Assess the impact of a prior probability; Estimate the likelihood of the evidence: P(E|Htrue) and P(E|Hfalse); Update the probability of a claim/assumption/hypothesis when new evidence comes available; Aggregate evidence from multiple sources by applying Bayes Rule.

Module 13: *APPLY*	Use the PICOC method to determine whether the evidence applies to the organizational context; Determine whether a decision/intervention gives you the biggest bang for your buck; Assess the level of risk inherent in a decision/intervention; Identify ethical issues that need to be considered; Determine whether (and if so, how) the evidence is actionable; Determine whether there are moderators that need to be taken into account; Determine, given the type of decision at hand, how and in what form the evidence can be applied.
Module 14: *ASSESS*	Identify the type of decision (to be) made (routine, non-routine, or novel/hyper complex); Determine whether a decision was executed as planned; Assess an outcome using the gold standard method; Assessing an outcome using quasi- or non-experimental methods; Suggest ways to improve the validity and reliability of an outcome assessment; Assess whether an outcome was measured in a reliable way; Assess whether indirect and intangible costs were taken into account; Assess the (unintended) consequences of a decision on stakeholders.
Module 15: *Building EBMgt capacity in your organization*	Explain how to develop a questioning mindset; Explain how to make more mindful and explicit decisions more explicit; Create opportunities for people to practice and apply learning; Explain why evidence alone does not change people's minds; Illustrate how to give people's minds a way out; Help people to develop a new operating logic; Explain why increasing people's accountability leads to more information-seeking behaviour; Explain why it is important to take small steps; Determine the best way to build evidence-based capacity in your organization.