

# Course subjects

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To ascertain the importance of multiobjective models in real life, perhaps we could ask the reader when is the last time that he or she made a real decision on the basis of a single criterion? Whether in professional or personal choices, we rarely use a sole criterion and if we do, costly mistakes can result. Thus, sole criterion, such as a benefit-cost ratio, which have been used for decades by the Federal Government to decide about public projects, have led to considerable ecological or social problems. Multiobjective decision-making is important because in almost every engineering, business or personal decision, there are several conflicting objectives or criteria which must be traded off. Even the use of the benefit-cost ratio implicitly trades off between maximization of benefits and minimization of costs.

# problems

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- (1) inconsistencies, redundancies and ambiguities are avoided or possibly eliminated by a rigorous presentation.
- (2) before choosing a technique, one must know which hypotheses are to be satisfied, and which properties of the results can or cannot be obtained; for example, whether or not the solution will be strictly or weakly non-dominated.
- (3) the choice of a technique often determines the non-dominated set, hence the solution itself; for example, the weighting method with positive weights may miss solution points (see Section 2.3).
- (4) a rigorous presentation provides a solid basis for comparing techniques (see Section 8.4).

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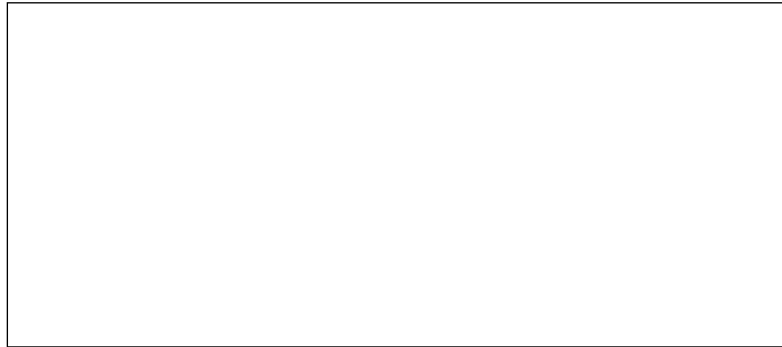
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