

Fundamental Steps Towards  
Selection of a Design  
(preliminary report)

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After several years of intensive concentration in the area of experiment and treatment designs, I have come to the conclusion that any sophisticated and academically oriented research in the area of design should go through (at least try to) the following path:

- Step 1. Precise statement(s) of the criteria which are going to be achieved;
- Step 2. Characterization of all (or at least a subfamily) designs satisfying criteria stated in step one;
- Step 3. Meaningful isomorphic designs satisfying criteria stated in step one should be rigorously defined;
- Step 4. Study of the existence and nonexistence of (nonisomorphic) designs being characterized in step two and classified in step three;
- Step 5. Construction of (nonisomorphic) designs, the existence of which has been established in step four. In this stage one may try to find out what other properties, rather than those being stated in step one, the constructed designs enjoy;
- Step 6. Enumeration of nonisomorphic designs;
- Step 7. Seeking efficient algorithm(s) for generating designs being enumerated in step six;
- Step 8. Preparation of constructed designs for cataloging;
- Step 9. Random selection of a design from the prepared catalog.

These steps will be explored and demonstrated via several examples.