Selling yourself to a potential academic employer.

How to Write a Research Plan
Develop a research plan that you are passionate about.
The research must address an important scientific question which if answered will have large impact.
Golden Rules Three

- Understand the mission, vision and values of the academic department.
  - What is the department’s research foci?
  - What are the department’s research strengths?
  - What are the department’s research weaknesses?
  - What research area(s) does the department seek to strengthen?
  - What research area(s) are not of interest or beyond the capabilities of the department?
  - What is the department’s balance between undergraduate education, graduate education, and research?
  - Does the department value technology transfer?
The research plan must satisfy the department’s evaluation criteria.

<table>
<thead>
<tr>
<th>Candidate Name:</th>
<th>Candidate Evaluation</th>
<th>Date of interview:</th>
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<tbody>
<tr>
<td>Reviewer Name:</td>
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Please indicate the basis for your evaluation (check all that apply):

- [ ] CV
- [ ] Attended job talk
- [ ] Personal meeting
- [ ] Read articles or book chapters
- [ ] Group meeting
- [ ] Know professionally
- [ ] Attended lunch or dinner
- [ ] Seen at conferences

Please comment on the scholarly and professional activities of the candidate:

Please comment on the potential of the candidate for being an effective teacher:

Please rate the candidate on each of the following for evidence of (or potential for):  

<table>
<thead>
<tr>
<th>Scholarly impact</th>
<th>excellent</th>
<th>good</th>
<th>fair</th>
<th>poor</th>
<th>no comment</th>
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<tr>
<td>Research productivity</td>
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<td>Research funding</td>
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<td>Match to department priorities</td>
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<td>Collegality/Collaborative activities</td>
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<td>Recruitment and supervision of graduate students</td>
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<td>Department and college service activities</td>
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<td>Advising and teaching of undergraduates</td>
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Additonal comments:
Typical Evaluation Criteria

- **Significance.**
  - Does the research plan address an important problem?
  - If the aims are achieved, how will scientific knowledge or clinical practice be advanced?
  - What will be the effect of these studies on the concepts, methods, technologies, treatments, services, or preventions that drive this field?
Typical Evaluation Criteria

- **Approach.**
  - Are the conceptual or clinical framework, design, methods, and analyses adequately developed, well integrated, well reasoned, and appropriate to the aims of the research plan projects?
  - Are potential problem areas acknowledged and alternative tactics considered?
  - Are there potential collaborators within the department who could contribute to the research plan?
    - How will their participation increase your probability of success?
    - How will their participation benefit them and the department?
Innovation.

- Is the research plan and proposed research original and innovative?
- For example: Does it challenge existing paradigms or clinical practice or address an innovative hypothesis or critical barrier to progress in the field?
- Does the project develop or use novel concepts, approaches, methods, tools, or technologies?
Typical Evaluation Criteria

- **Applicant Qualifications.**
  - Is the applicant appropriately trained to carry out the proposed research?
  - Is the research proposed appropriate to the experience level of experience of the applicant?
  - Does the applicant and proposed collaborators bring complementary and integrated expertise to the research plan project (if applicable)?
**Typical Evaluation Criteria**

- **Environment.**
  - Does the department’s scientific environment or environments contribute to the probability of success?
  - Do the research plan studies benefit from unique features of the department’s scientific environment or environments or subject populations?
  - Do the research plan studies use useful collaborative arrangements?
  - Does the department have the resources needed to provide the required institutional support for conducting the proposed?
    - Space
    - Equipment
    - Travel funds
Developing the Research Plan

Purpose:
- Describes the proposed research
- States the significance of the research
- Explains how the research will be conducted
Developing the Research Plan

- **Audience** –
  - Search committee members
  - Department head
  - Dean
  - Associate Dean for Research
  - Departmental faculty members
  - External references

- **Audience expertise**
  - Majority do not have expertise in the your research area
  - Very small number have expertise in your research area
    - Primary advocates
Developing the Research Plan

- Write the research plan so that what you are proposing to do can be easily grasped by those without expertise and explained by those with expertise.
- Use language that stresses the significance and the impact of the proposed work.
Each project in the research plan should include the following:

- **Specific Aims – What you intend to do**
  - What is the interesting scientific question that you hope to answer?
  - Goal
  - Objectives
  - Hypothesis

- **Background and Significance**
  - Why the work is important?

- **Preliminary Studies**
  - What has already been done?

- **Research Design and Methods**
  - How you are going to do the work?
Preliminary Studies

- Describes prior work that you have done that is relevant to the proposed project
  - Your own prior publications
  - Key publications of other researchers
  - Unpublished research data from your laboratory

Purpose:
- Aids the search committee in assessing the likelihood for success of your proposed research
- Convinces the search committee that the work is feasible within the department’s research setting and under your direction
- Establishes the experience and competence of the applicant
Preliminary Studies Strategies

- Discuss how previous work led to the current research plan
- Emphasize how the previous work demonstrates the feasibility of the proposed research methods
- Reference concise examples of your experiments that support the premise of your proposed research plan
- Accuracy is important in figures, tables and graphs
Research Design and Methods

How you plan to carry out the work

- Provides an overview of the proposed study design and conceptual framework
  - Experimental design
  - Mathematical analysis design
- Includes specific methodology that will be used
- Explains why the chosen methods are the best methods to use
- Describes novel concepts, approaches, tools or techniques
- Describes how data will be collected and how results will be analyzed
- Explains statistical techniques that will be employed
- Includes a project plan and timeline
- Discusses potential pitfalls and alternative methods that might be employed should pitfalls arise.
- Leads to a realistic startup package request
General Guidelines

- Think like a search committee member who has lots of applications to read
- Be complete and include all pertinent information
- Be organized and logical
- Write one sentence summarizing the topic of each section
- Make one point in each paragraph
- Use a clear and concise writing style. Keep sentences to 20 words or less. Write simple, clear sentences.
- Use active rather than passive voice, e.g. “We will develop an experiment...” rather than “An experiment will be developed...”
General Guidelines

- Spell out acronyms on first reference
- Avoid redundancies
- Use sub-headings and keep paragraphs short
- Use diagrams, figures, and tables with appropriate legends when explaining complex information
- Indents, bold print, numbered and bulleted lists add readability and help the search committee member quickly find key information
- Do not use headers and footers
- Don’t propose more work than can be reasonably done
General Guidelines

- Tell the search committee members why your research will help the department meet its goals.
- Include enough background information to enable an intelligent person to understand the proposed work.
- Allow enough time for internal review and editing by colleagues (both experts and non-experts).
- Have zero tolerance for typographical errors, misspellings, grammatical mistakes or sloppy formatting.
- Don’t confuse the search committee members by repeating using different words to state the goals, specific aims or hypothesis in different parts of the research plan.