Quick Guide
TO STARTING A
PROFESSIONAL MASTER’S PROGRAM

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Professional Master’s students and faculty from N.C. State University with industry professionals at Wyeth Vaccines in Sanford.
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1. Why are professional master’s programs important?

a. Professional master’s mission

Professional master’s degrees attempt to meet non-academic employers’ rising need for an improved graduate workforce. Students need to acquire a high level of technical aptitude; multiple professional competencies; an interdisciplinary, highly flexible, and collaborative attitude; and a globally oriented perspective. Professional master’s education seeks to provide these skills by adding employment-specific education to the curricula.

b. N.C. State University effort

N.C. State University is leading a pilot effort to promote and implement professional master’s degree programs. The Graduate School is devoted to serving all professional master’s programs and providing multiple services (see 6) at N.C. State University and other interested University of North Carolina campuses.

c. UNC Tomorrow

Professional master’s programs are part of the UNC systems’ new strategic plan entitled “UNC Tomorrow.” Professional master’s programs are well-suited to meet many of the goals set forth in UNC Tomorrow. Some examples are: enhancing global competitiveness, enhancing economic transformation and community development, and engaging and connecting with the State. Therefore, universities in the UNC system are strongly encouraged to embrace this concept and to plan and implement several programs. Programs may share or exchange components, and N.C. State University will assist in the coordination and support of this effort. Long-term goals include creating a menu of possible iterations of professional master’s programs, professional certificates, and single courses that can satisfy any student and employer need in a “made-to-order” manner (see 6e).

2. How do we determine whether we want to start a professional master’s program?

a. Types of professional master’s programs

Existing MS programs that train students for non-academic careers are by definition professionally oriented and may be classified as professional Master’s (PM) programs. They often include elements of employer interaction in their curriculum such as guest seminar series, internships or co-ops, or projects with employers. Professional Science Master’s (PSM) is a new breed of graduate MS program that also caters to employers’ needs. The PSM curriculum is interdisciplinary and includes professional skills training and trade-specific management components. The Council of Graduate Schools has established guidelines for the PSMs that must be followed to earn the PSM affiliation. A parallel to the PSMs in the humanities is called the Professional Master’s of Arts (PMA). At this time there are no specific guidelines for the curriculum, but it is advisable to follow the guidelines for the PSMs while exchanging the science courses with other relevant courses. Finally, new professional masters programs exist which contain hybrids of the above-mentioned components.

b. Understanding the market, the employer base, and employers’ needs

Before planning a new professional master’s program, it is important to assess the demand for graduates in the particular field. A so-called environmental scan can help establish the market potential for a new degree.
Consider asking the following questions (questions 1 through 4 must be answered):

1. Does the program fill a void or need in our society?
2. What does the employer base look like?
3. Can the need be met if a professional master’s program is created?
4. Can the traditional student base be expanded:
   a. Are there potential students who would continue their studies or return to school for a professional master’s degree?
   b. Are there existing employees who would return to school for this degree?
5. Would employers support the degree program by allowing their employees to return to school for this degree (flexibility, time, or other resources)?

It should be noted that employers are not always aware of their future needs. Sometimes employers like to see the “product” (the program and its graduates) before they will support a particular degree.

**Checklist for understanding the need for a professional master’s program:**
- Identification of workforce need
- Definition of employer base
- Estimate of size and type of student base

**c. Reasons for employers to participate in a professional master’s program**

Employers benefit because they have an opportunity to:
1. Participate in curriculum design
2. Assist in training students to meet their own needs (improve upcoming graduate workforce)
3. Select upcoming employees and offer employment ahead of others
4. Learn about university research and collaboration potential in their field

**d. Understanding basic professional master’s program characteristics and defining a program**

There are several different categories of professional master’s programs:
1. Science based (may be a PSM-type program)
2. Arts based
3. Engineering based
4. Hybrids of these

Typical components of a professional master’s program (here modeled from a PSM-type program) constitute a multidisciplinary or interdisciplinary academic core and one or more PLUS (professional skills) components from each of a) and b):
1. Main field(s) (science if a PSM program)
2. “PLUS” components
   a. Supporting field (could be a 12 to 15 credit hours certificate)
      i. Business
      ii. Public policy
      iii. Non-profit management
      iv. Other (such as analytics, communication, or education,)
   b. Employment-specific core
      i. Employer-interactive and relevant course(s) (see examples in 4e and 6d)
      ii. Practicum
Checklist for defining the overall structure of a professional master’s program:
- Identification of professional master’s program category
- Selection of the professional master’s program’s main field(s)
- Identification of PLUS component(s)
- Commitment to developing a course with employer-interactive component(s)
- Definition of a practicum component (not always required)

The current guidelines for PSM affiliation can be found at www.sciencemasters.com

e. Faculty benefits of creating a professional master’s program

Some of the reasons for faculty to become involved in creating and managing professional master’s programs are:
1. Opportunity for networking with employers
2. Increased visibility through interaction with employers
3. Access to employer resources (including new technology, know-how, and funding)
4. Prospects for collaborative projects and student supervision
5. Potential to gain an understanding of the particular employment environment.
6. Potential for revenue

f. Gauging departmental/interdepartmental interest

A common barrier to success is a low level of faculty interest. Therefore, it is important that faculty is aware of the benefits of starting professional master’s programs (see above). It is unrealistic to expect unanimous support for such initiatives. For some people, change is both too risky and unwanted. Discussing both pros and cons is healthy. Some of the common issues relate to faculty expectations (see 6f, g), program resources (see 6f), and hesitation to interact with employers (see 6b). To start a program, there must be at least a small subset of faculty (often with an entrepreneurial mind-set) who understand and who are willing to spend some of their time and effort to start professional programs.

Checklist for gauging faculty interest (college(s) and department(s)):
- Discussion of the need for an improved graduate workforce
- Information about the professional master’s initiative and UNC Tomorrow
- Discussion of employer base, student type, and number of prospects
- Discussion of the program and its components
- Discussion about creating the necessary components of the program
- Identification of individual faculty interested in participating
- Discussion about expectations, resources, and program sustainability (see 6f)
- Discussion about FTE requirements
3. We have decided to start a professional master’s program. Who should be involved?

a. Contacting the Graduate School for guidance in degree planning

Once it is evident that a group of faculty wants to discuss how to plan and manage a professional master’s program, the on-campus Graduate School should be contacted. In addition, the Graduate School at N.C. State University offers assistance to all UNC Campuses.

Contact information:  Lisbeth Borbye
Email: lborbye@ncsu.edu

b. Identifying a director and participating faculty

Directing a professional master’s program involves coordinating the program effort, networking with employers, and teaching and mentoring students. In addition, this responsibility may require various administrative duties until an administrative assistant or coordinator can be hired (see 6f).

An effective director enjoys interacting with people. Experience in the non-academic, employer-relevant area is not required, although it is clearly an advantage. If additional faculty has employer contacts, which can be deemed useful for the program, these are particularly valuable assets for a director with no prior experience in networking outside the university setting. The Graduate School at N.C. State University will provide training and guidance for all new directors (see 6b, c, d) to help them learn how to build university-employer alliances and design and teach employment-specific curricula.

Participating faculty should be willing to include professional master’s students in existing courses. Faculty can help the director review and admit students, discuss curricula and employer interaction, and determine internal resource allocations.

- Check List for identification of director and participating faculty:

  - Identify a person who has interest, people skills and time
  - Evaluate a person as “champion” for the cause
  - Determine this person’s needs for success
  - Establish a backup plan if “champion” leaves
  - Identify person(s) with employer contacts
  - Identify supporting faculty members
  - Create a faculty support group
  - Discuss tasks
  - Identify existing resources

  All of the above points should be addressed by the director in consultation with participating faculty. The Graduate School of Business will provide training and guidance for directors.

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c. Identifying employer contacts

Employer interaction may be needed for a variety of services, such as teaching and mentoring, providing jobs and internships, or serving on an advisory board. Mapping the local, regional, and international employers with their specific interest, size, and future needs can help determine whom to contact. Faculty may already have employer contacts to help identify influential and interested parties. Alumni and mid-career professionals are also good candidates. The Graduate School at N.C. State University will provide guidance for mapping and contacting employers (see 6b).
Checklist for identification of employer contact:
- List desired employer services
- Map potential employers
- List alumni in fields related to the professional master’s program

4. What is the logical process for creating a professional master’s program?

a. Adjusting an existing program
If a master’s program already exists it may be possible to adjust the curriculum to that of a professional master’s program. Typically such an adjustment includes adding the components described in 2d and establishing employer interaction. Departments may choose to offer both a traditional master’s degree and a professional master’s degree or just one of these. PSM degree names are Master of, MS or MA. PSM affiliation is obtained by application to the Council of Graduate Schools. The guidelines for affiliation are found on the UNC PSM Web site.

b. Obtaining approval to plan and establish a new program
Approval from the local UNC campus and the UNC General Administration (UNC-GA) is necessary. To start a new program, both UNC-GA Appendix A (Notification of Intent to Plan) and Appendix C (Request for Authorization to Establish a New Degree Program) must be filed. Please work with the on-campus College and Graduate School Administration to determine the appropriate steps involved.

Checklist for planning and implementing professional master’s programs:

An existing traditional master's program will be converted into a professional master's program.
- Obtain internal approval for the changes at the university level
  (UNC-GA approval may also be necessary)

A new professional master’s program will be developed.
- Follow campus-specific protocol, which will include:
  - Fill out and route Appendix A
  - Fill out and route Appendix C
c. Designing the curriculum and example models

There are several ways to satisfy the curriculum requirements for professional master’s programs (30 to 40 credit hours). Three examples are given below:

1. Two-year option (with 39 credit hours):
   i. Fall 1: 9 credit hours
   ii. Spring 1: 9 credit hours
   iii. Summer: 3 credit hours
   iv. Fall 2: 9 credit hours
   v. Spring 2: 9 credit hours

2. One-year option (with 33 credit hours):
   i. Fall 1: 15 credit hours
   ii. Spring 1: 15 credit hours
   iii. Summer: 3 credit hours

3. One-year option (with 30 credit hours):
   i. Fall 1: 12 credit hours
   ii. Spring 1: 12 credit hours
   iii. Summer: 6 credit hours

The curriculum may comprise a mix of required courses (including the traditional academic courses, the PLUS components, and elective courses or course modules. In fields with many specialties, it helps to first develop a core curriculum that can be built upon as needed.

Certificates comprising 12 to 15 credit hours can be fully or partially included in the curriculum. For example, a student in the Master’s of Microbial Biotechnology program can earn a certificate in biotechnology by taking extra credit hours in that subject. Also, some PLUS components may be counted as part of a later additional degree. An example is the one-year “overlay” MBA option in the Master’s of Microbial Biotechnology program (MMB). In the MMB program, the MBA courses and the employment-specific case can be credited toward an additional MBA degree following graduation from the MMB program and an additional year of study in the MBA program. In this way students are able to acquire a dual degree (MS + MBA) in three years.

As mentioned earlier, an alternative to creating an entirely new degree program exists. Departments can use the model of an existing MS/MA and add the necessary PLUS courses. Traditional MS and professional MS students may first share the original curriculum, after which the professional MS students will continue with PLUS courses:

1. Generic study period: All MS students enroll in basic MS/MA program
2. Professional study period: Students elect traditional or professional track (MS/MA or PM)
3. Additional degree study period: MBA, certificate, or other degree

Checklist for designing the professional master’s program curriculum:

- Years to complete program
- Courses and credit hours
- “Embedded” certificates
- Option to use credits toward other degrees or certificates
d. Basic principles for assembling the employer advisory board

Establishing an advisory board of employers is essential for guiding the direction of a professional master’s program and its director. The board should be comprised of members from organizations with a direct interest in the program’s components, and, at best, with hiring potential for future graduates. It is recommended that small, medium-sized and large organizations be represented to reflect different needs. Board members’ employment rank is likely to be directly correlated to their influence. A balance between high rank and availability must be achieved.

e. Designing employment-specific courses

The employer advisory board and individual employer contacts should help guide the design, content, and implementation of employment-specific courses. Such courses can be more or less dependent on employer instruction. Some examples of courses with employer interaction are:

1. Guest lecture seminar series (selection of employer speeches)
2. Case studies in the classroom (employers or faculty review past or current projects)
3. Case studies or externships at employer sites (employers provide real-time projects)
4. Internship course (short-term individual student employment)

5. How do we best advertise the program to students?

a. Create an effective Web site

Today’s students seek much of their information online, so a program homepage is an effective recruiting tool. The Graduate School at N.C. State University is continuously developing and maintaining a central professional master’s homepage for the UNC campuses and for N.C. State University (see 6h). As a minimum, individual program homepages should contain the information listed on the checklist below.

Checklist for program homepage:

- Introduction
- Mission and culture
- Program milestones
- Curriculum
- Employer advisory board
- Employment-specific training
- Internships or other employer interaction
- Student and alumni statistics
- Quotes from employers
- Frequently asked questions (FAQs)
- Publications
- Sponsorship opportunities
- Contact information
b. Participate in career fairs
Directors, alumni, and current students are some of the best recruiters, and participating in student career fairs is an effective way to create visibility for a professional master’s program. Students often participate because they are interested in jobs or internships, and many can be persuaded to enter into a master’s program instead, especially if future career prospects are promising. When students meet with their peers, they are likely to follow their peers’ recommendations. It is a good idea to provide a brochure to introduce the program, and include contact information.

c. Inform directors of graduate programs and academic counselors
All directors of graduate and undergraduate programs and other academic counselors should be made aware of the professional master’s initiatives currently existing and underway. It is recommended that student orientation sessions include information about professional master’s education.

6. Which types of support does the Graduate School at N.C. State University provide?

a. Support during program planning and launch at N.C. State University
The Graduate School at N.C. State University has been working with the Provost’s office to provide support for one or more of the following activities: performing an environmental scan to establish market potential, establishing employer alliances (travel to employer, employer advisory board meetings) and advertisement (Web site, other advertisement). In addition to monetary support, faculty release time may be negotiable.
Additional program support may be provided for a maximum of 2 years (post launch), after which the program must be self-sustainable (see 6f).
Please note that the support options may vary depending on the current economic conditions.

b. Training modules for new professional master’s directors
The Graduate School at N.C. State University is planning to provide a variety of training modules for a new professional master’s program, including:
1. Starting a professional master’s program
2. Employer alliance building and case study development
3. New methods in case study teaching and innovation
4. Adding professional skills training to curricula

c. Mentoring of professional master’s directors
All new directors may request mentoring from the Graduate School at N.C. State University. In addition, a director-to-director mentorship program will be established based on demand.

d. New educational resources for professional master’s programs
Several publications exist, which contain new employment-specific curriculum for most professional master’s programs. More information is available upon request and on the central professional master’s program homepage (see 6h).
e. Organization of inter-professional master’s module and certificate sharing

The Graduate School at N.C. State University plans to develop a list of modules, certificates, and individual courses, which can be shared between programs. The goal is for students and employers to be able to tailor individual curricula, allowing for employment-specific tracks while ensuring the necessary requirements are met for each degree.

f. Program sustainability support plan: N.C. State University model

Financial support for the professional master’s program must be negotiated with the provost’s office. It should be based on enrollment projections and formula funding per student credit hour, based on the current enrollment year. Only purpose 101 (Institutional funding) is available. There is no guarantee that all or any portion of these funds will be available to a program. An example of a program budget is shown below, and there are many other models. Instead of a 25 percent full time equivalent (FTE) director and a 50 percent FTE assistant, a 50 percent director may be a priority. Alternatively, a 100 percent FTE assistant may be needed to assist a director. Operational costs may vary and buyouts of PLUS courses may not be necessary.

<table>
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<tr>
<th>Budget item/Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<td>$30,000</td>
<td>$30,000</td>
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<td>Salary PSM director (50% FTE)</td>
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<td>Salary assistant (50% FTE incl. benefits)</td>
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<td>$50,000 (5 students)</td>
<td>$100,000 (10 students)</td>
<td>$150,000 (15 students)</td>
<td>$200,000 (20 students)</td>
</tr>
</tbody>
</table>

Budget assumptions:
1. The revenue projections are calculated on an average tuition income basis. It is estimated that the revenue generated per student per year is $10,000 (academic funds only).
2. Student enrollment minimum numbers are 5, 10, 15, and 20 for years 2, 3, 4, and 5, respectively.
3. Director release time (% FTE) increases from 25% to 50% when the total number of enrolled students (year 1 + year 2 cohorts) exceeds 15.
g. Assessment of professional master’s programs: N.C. State University model

The Graduate School at N.C. State University will help assess the outcomes of individual professional master’s programs. The assessment tool includes evaluation of the following metrics:

1. Student learning
   a. Traditional academic metrics
   b. Professional skills development
   c. Employment-specific creativity and problem-solving

2. Program quality
   a. Employer alliances and projects
   b. Enrollment, graduation, and post-graduation metrics

The programs will participate in the 8-year review and outcome assessment process of the Graduate School.

h. Central advertisement and advertisement support

All professional master’s programs at N.C. State University will be listed at a central N.C. State University Web site, while all programs in the UNC system will be listed on a central UNC Web site currently found at www.ncsu.edu/grad/psm. Directors are encouraged to request information regarding creating effective advertisement materials for employers and students.

7. How do we contact others involved in professional master’s programs?

a. The Graduate School at N.C. State University

The Graduate School at N.C. State University serves as the coordinator for all professional master’s efforts. A central employer advisory board will be established to provide overall guidance. Members of the board, directors, and programs will be listed on the central Web site(s).

b. Professional master’s director’s network

Professional master’s program directors will be encouraged to interact with each other through regular gatherings. In addition, directors will be invited to develop focus groups to explore and plan future interactions and director-director mentoring.

c. Professional master’s student and alumni club

The professional master’s students will receive encouragement to maintain a student and alumni club. It is expected that this organization will track alumni, plan events, establish a Web presence, and publish a newsletter.

d. National professional master’s associations

A large number of professional science master’s programs already exist in the United States. They are listed at www.sciencemasters.com. PSM program directors meet biannually to discuss progress and future undertakings. A national professional science master’s association (NPSMA) was established in November 2007. More information about its activities can be found on www.npsma.org. Students, individuals, organizations, and universities can become members. It is expected that other associations will be created to organize efforts in additional fields such as the arts.
This booklet provides a brief introduction to the professional master’s program initiative and an overview of how to establish a professional master’s degree program.