

The professional profile of PhD-holders

Nate Dowdall

R&D Scientist or Engineer in biotech or advanced materials

dowdalln@mcmaster.ca

Core business

PHASE 1 Skill development

*Sets his professional goals to be ambitious yet realistic.
Identifies and develops means to enhance his employability throughout his career; manages his professional development.
Broadens and upgrades his skillset, personal qualities and achievements.
Uses his networks to expand his scope of competence.
Knows how to transfer his expertise to other fields of activity.
Realizes the necessarily international dimension of his career path.
Accepts input from a mentor or coach to benefit his professional development.*

PHASE 2 Evaluation

*Knows how to regularly evaluate the progress, impact and outcomes of his staff's activities.
Takes part in evaluating both internal and external projects.
Is able to evaluate hypotheses and concepts lying beyond his field of expertise.
Encourages his staff to take ownership of the evaluation process.*

PHASE 2 Information management

*Conducts advanced searches using a range of software solutions, resources and techniques, recognizing the advantages and limitations of each.
Masters the creation, organization, validation, sharing, storing and archiving of information and/or raw data and addresses the associated risks.
Understands the legal, ethical and security requirements of information management.
Is familiar with the value of, and uses, metadata.
Advises and assists his staff using information-gathering and management methods, critiquing sources and evaluating information and data.
Makes his staff aware of information security and legal and ethical requirements.*

PHASE 2 Expertise and methods

*Is familiar with recent progress in fields related to his own.
Is able to engage in dialogue and collaboration with experts in other disciplines or fields of activity.
Takes ownership of new research methods and techniques.
Is able to document and evaluate his activities using statistical methods where applicable.
Can formulate complex problems that correspond to new challenges.
Is able to develop arguments in support of new projects.
Knows how to adapt his arguments to his audience.
Advises and assists his staff in making appropriate use of investigative methods, improving their performance and enhancing their skills.*

Personal and relational qualities

PHASE 2 Communication

Adapts his register to communicate with experts in other fields at both the national and international levels.
Masters communication techniques for various contexts and media.
Communicates effectively when addressing a diverse and lay audience.
Knows how to address a community of professionals.
Educates and trains his staff in the use of digital communication technologies.
Is able to work and lead a group in at least English and one other world language.

PHASE 1 Collaboration

Develops and maintains cooperative networks.
Knows how to build a professional network for his own and the company's benefit.
Is considered an authority in his field of expertise.
Is able to envisage his work in a partnership framework; evaluates the benefits and limitations of a partnership and identifies shared and conflicting interests.

PHASE 2 Analysis, synthesis and critical thinking

Knows how to apply his analyzing and synthesizing abilities to new fields.
Takes ownership of new analytical methods.
Has a novel and independent way of thinking and makes significant contributions.
Questions "business-as-usual" scenarios in his activity.
Advises his staff to help them develop their own capacities of analysis and synthesis.
Stimulates critical thinking among his peers and his staff.

PHASE 2 Open-mindedness and creativity

Explores related fields.
Conceives new projects to find answers to essential questions.
Encourages his staff to seek challenge, be curious and engage in scientific questioning.
Defines and carries out innovative interdisciplinary projects with the help of contributors from various backgrounds.
Serves as a vector of innovation, a realistic visionary, a constructive agitator.
Encourages creativity and innovation among his staff.
Has acquired professional experience abroad in a culture other than his own.

PHASE 2 Commitment

Can picture himself in other contexts; applies his commitment and motivation to other activities and fields of expertise.
Perseveres in his undertakings and projects; paves the way for other staff and supports them.
Inspires the enthusiasm and commitment of his staff.

PHASE 3 Integrity

Creates a culture of respect and ethical behavior within his entity.
Takes immediate measures if he observes unethical conduct.
Contributes to changing policies, procedures and practices relating to integrity.

Business management and value creation

PHASE 2 Balance

*Knows how to deal with strong opposition.
Draws on his strengths and transcends his weaknesses.
Knows how to cope with pressure generated by his career or his personal life.
Is able to keep his work and home environments separate.*

PHASE 3 Listening and empathy

*Encourages his staff to exercise their listening abilities.
Establishes a mode of operation that allows everyone's contributions to be taken into account.*

PHASE 1 Negotiation

*Is able to detect people's unstated needs based on the requests they formulate.
Knows how to reconcile the drivers, requirements and constraints of his contacts to reach a consensus, and is able to gather all the information needed to do so.*

PHASE 2 Project management

*Is attentive to discontinuities, trends and weak signals; is prepared for the unexpected; identifies unforeseen opportunities in the project.
Recognizes good ideas and best practices, identifies weaknesses and gaps.
Considers and implements any necessary changes in objectives, organization, schedule, resources and quality requirements.
Knows how to drive his staff in compliance with scheduling and time constraints.
Utilizes a wide range of project management strategies; clarifies priorities and formalizes expectations.
Introduces quality systems.
Guides difficult, complex projects to successful completion; manages several projects simultaneously and efficiently; can intervene to conduct project audits and propose action plans to get projects back on track.
Provides support or assistance to his staff; takes over on projects that lack leadership.*

PHASE 1 Managing change

*Can adapt his approach and the project organization according to imperatives.
Adapts to changes and opportunities; knows how and where to find advice.*

PHASE 1 Managing risks

*Can determine the risks related to his project and the means for controlling them.
Is aware that technological and financial risks increase during the innovation process.
Understands the concept of corporate social responsibility.*

PHASE 1 Decision-making

*Knows how to make appropriate decisions for each phase of his project.
Assists his line management in making major decisions (e.g., reporting, scenarios)*

PHASE 1 Obtaining and managing funding

*Manages his own funding and is comfortable in discussions with budget, financial and economic decision-makers.
Understands the funding process and knows how to determine the profitability of an activity.
Knows how to answer a request for proposals and/or write a grant application.*

PHASE 1 People management

*Has experience with teamwork; knows how to encourage, support and recognize the contributions of each player.
Knows how to be a team player.
Is able to win the trust of his peers and his line management.
Can report on his activities.
Supports his peers when needed and can provide assistance.
Understands human resources policies and management tools such as recruitment, evaluation, remuneration and strategic workforce planning.
Takes safety, social responsibility and labor law requirements into account.
Upholds rules on non-discrimination and equal opportunity among employees.*

PHASE 1 Producing results

*Knows how to transform ideas into innovations.
Quickly deploys prototype and test phases; involves internal and external customers in these phases.
Learns the lessons of the initial tests.
Understands the policies and processes involved in publishing and exploiting research outcomes in his entity.
Is able to determine the most appropriate means of exploiting his results (e.g., patent, publication).*

PHASE 1 Intellectual and industrial property

*Has basic knowledge of the rules of intellectual/industrial property and copyright as they apply to his own activities.
Understands the advantages and drawbacks of filing a patent.
Is aware of the importance of controlling the release of information.*

PHASE 1 Customer focus

*Is attentive to national and international markets; takes incoming and outgoing communication (suppliers, customers) into account.
Gathers information on the needs and expectations of internal and external customers.
Uses his technical expertise and familiarity with products to propose solutions tailored to customers.
Masters the basics of marketing.*

Strategy and Leadership

PHASE 1 Strategy

*Is aware of how his project fits into the organization's strategy and the strategic directions of the sector or field of activity.
Understands relationships between entities and individuals (the role and drivers of each).
Is able to identify influential people that support his projects and understand what they stand to gain from it.*

PHASE 1 Leadership

Exercises leadership in connection with a project of which he is in charge.

Knows how to be persuasive and enlist support for a project

.Mobilizes skills for a project of which he is not in charge; manages human resources even when people do not officially report to him.

Builds alliances.

Establishes relationships based on trust.