PyroLife PhD recruitment rubric and best practices

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Executive Summary

About: This document describes the open, transparent, merit-based recruitment process that was developed to select 15 Early Stage Researchers (PhD candidates) for the PyroLife Innovative Training Network (EU-MSCA actions grant nr. 860787). The aim of this procedure was to provide an overall framework for hire that was adapted locally in response to designated University and/or local legal requirements on hiring if required.

Rationale: The reason we created these materials was to have an equal, fair and transparent recruitment process aimed at hiring the best candidates, reducing unconscious bias throughout the selection process. While we found a range of materials describing the importance of such a process (e.g. Esposito et al, 2015[1]), we could not find a set of concrete best practices and a good generic selection rubric to follow. We therefore developed this set of best practices with a diverse team of researchers from the PyroLife consortium in close collaboration with a recruitment officer.

For whom: this document is intended for those involved in hiring PhD candidates. The contents may also be relevant for those involved in hiring people in other positions, as the rubric can serve as a basis for selection rubrics for other types of positions.

Best practices, selection rubric, template motivation letter: The best practices in this document (Section 1) first describe the importance of an equal, fair and transparent recruitment process, and then propose a concrete and concise 2-page procedure for recruitment texts, contact with the candidate throughout the process, the composition of the selection committee and required training, shortlisting of candidates, interviews, candidate ranking, reporting statistics and obtaining reference letters. Central to these best practices is the use of a generic selection rubric (Section 2), that is listed in this document and included as an Excel attachment for easy use. A template motivation letter with required attachments (Section 3) is also included.

Method: the best practices were developed based on standard hiring procedures in place at Wageningen University, complemented with materials to explicitly consider open, transparent, merit-based recruitment concepts in selection panels, committee training, invitations, and interview and ranking procedures. The selection rubric is based on the selection rubrics used by Imperial College London[2] and the Open University Catalonia[3], tailored to PyroLife needs, using input from the CENTA doctorial training programme[4], UC Berkeley[5], and Wageningen University[6] rubrics for scoring thesis projects. The template motivation letter was created in line with the selection rubric, and its fill-in forms on early career and mobility requirements drawn up in line with ITN requirements.

Evaluation and satisfaction: These materials were used by 15 selection committees for PhD recruitment across six universities, two research institutes, a private company and a foundation in Europe. The topics of these positions ranged from social sciences and economics to environmental science and engineering. While no formal evaluation of this process has taken place, several requests for using our materials in

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[1] Esposito et al, 2015. Report of the working group of the steering group of human resources management under the European research area on Open, Transparent and Merit-based Recruitment of researchers ([link](#))
[2] Imperial College, the Science and Solutions for a Changing Planet Doctoral Training Partnership ([link](#))
[3] Internal IN3-UOC rubric for predoc and postdoc candidates (in Catalan, not public)
[4] CENTA doctoral training programme ([link](#))
[5] Building on Excellence: Guide to Recruiting and Retaining Diverse Graduate Students at UC Berkeley ([link](#))
[6] Moene, A., Rubric for assessment of MSc-thesis, Wageningen University ([link](#))

other recruitment procedures indicated people were satisfied with this guidance. Informal feedback furthermore indicated that the rubric helped screen candidates in a systematic way, and that it greatly facilitated and simplified giving feedback to candidates that were not hired. For the selection guidelines, we recommend special attention to the advice regarding selection committees to avoid discussing and comparing candidates between interviews. Since this was a large deviation from standard practices for some, stressing its importance to limit bias caused by internal group dynamics is advisable.

Further improvement: This is a living document that will be improved with experience. We do not share this because we think it is a perfect procedure, we share this because we hope that through collaboration and sharing with others we can improve the equality and transparency in hiring decisions. We identified four items that can be improved. First, this procedure includes an explicit minimum gender distribution to be invited for interviews but does not do the same for race, ethnicity or geographic origin. The #BlackLivesMatter movement and #BlackInTheIvory initiatives are examples that show a world is to be gained in promoting participation of underrepresented minorities in science. We recommend review of this procedure in light of this, as well as review of these materials in light of the recent advice of >100 British scientists[7] regarding scoring and ranking of candidates using narrow criteria for excellence that can act as a barrier for underrepresented and marginalized groups in academia. Likewise, interview selection considers male and female genders but not others, and removing of identification details to allow for blind recruitment was done by some PyroLife host institutes but was not feasible for all. Finally, in the case of countries/institutes where unconscious bias training is not standard, there is opportunity for including a more solid training for selection committee members than the 3-min one listed here. We also recommend development of a CV template along with the motivation letter template to better make expectations explicit and facilitate screening of candidates using the rubric. We encourage reuse of these materials and welcome all constructive feedback for improvement.

Translation and (re)use: We encourage translation of this document to communicate this material to a wider public (any language is welcome). If you use these materials for hiring or develop your own version based on this document, it would be great to hear from you.

1. Best practices

[7] Giles et al, 2020 (link), covered in Research Professional News as "UKRI's PhD criteria 'biased against marginalised groups'" (link)

Hiring the best candidates, with minimal bias

As a consortium we agreed to an equal, fair and transparent recruitment process that is aimed at hiring the best candidates. We are committed to minimizing conscious and unconscious bias throughout the selection process. This means that:

- Selection of candidates should be influenced by group dynamics as little as possible. The reason for this is that group dynamics (of age, power, hierarchy, etc) can lead to bias in the selection process.
- Aim for a 50/50 gender balance in the entire procedure, as research shows that the gender distribution of a selection committee significantly affects the gender of the candidate selection[8]. A gender balanced recruitment process may thereby combat the following common sources[9] of gender bias in hiring:
    - women's independence is more often questioned
    - informal information about candidates tends to favor men and disfavor women
    - reference letters written for female applicants can differ from those written for male applicants
    - halo effect (first impressions)
    - affinity bias
    - women are more frequently questioned and the bar is often higher, independently of the gender of the evaluator
    - motherhood penalty

To achieve this, below follow a set of best practices for the various stages of the recruitment process.

Recruitment texts

All fifteen recruitment texts were created with a common message core about the PyroLife project and the expectations from candidates. Beneficiaries [host institutes] had the opportunity to add specific requirements as well as a description of their institute, the pay rate, and social benefits offered. Given that gendered language can strongly influence the diversity of the pool of applicants[10], a recruiter screened all texts for balance, accessibility, and inclusivity, manually and using Textio.com and the Wageningen UR toolkit for inclusive recruitment.

Contact with the candidate

- Candidates receive an (automated) confirmation when they submit an application
- All candidates are informed about whether or not they are invited for an interview
- Candidates that will be interviewed are informed about the procedure for selection (timing, format, composition of the selection committee)
- All candidates that are invited for an interview are informed about the result. Rejected candidates have the option to request feedback, for instance via phone or email.

Selection committee composition and required training

In the composition of the selection committee, aim for:
- 3-4 people in total
- Include at least one secondment partner in the selection process [in the case of other projects than ITN projects, this may be an external collaborator or stakeholder involved in the research]
- Aim for a 50/50 gender balance in the composition of the panel

If you have challenges creating a diverse selection panel, please consider asking others [in the case of an ITN: other beneficiaries/partners] not directly involved in your PhD project, and be open to supporting the selection of candidates for research projects that you are not directly involved in. Be mindful of the extra service burden that is often asked from women and other minorities in science[11].

Training of selection committee (required)

- We expect all members of selection panels to have taken training in (un)conscious bias in recruitment. For those who haven't received formal training, please watch the online video below (< 3 min, required).
- Understanding unconscious bias, by the Royal Society.
- For more information on unconscious bias and diversity, see https://royalsociety.org/topics-policy/diversity-in-science/

Candidate shortlisting

- We suggest that one person screens all applications for a specific Early Stage Researcher position for eligibility (in the case of ITN projects: mobility, early career requirements)
- The selection panel then screens the eligible candidates using the PyroLife selection rubric (Excel sheet)

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[8] Brink et al, 2006. Does excellence have a gender?: A national research study on recruitment and selection procedures for professorial appointments in The Netherlands. Employee Rel. 28(6), p523-539

[9] Institució CERCA, 2016, Recruitment Bias in Research Institutes (link)

[10] Independent, 2020 Thames Water sees major surge in female job applicants after removing 'masculine' language (link)

[11] Malisch, Jessica L., et al. "Opinion: In the wake of COVID-19, academia needs new solutions to ensure gender equity." Proceedings of the National Academy of Sciences (2020).

- Selection committee members create a shortlist of candidates independently of each other: avoid discussion of candidates before sharing shortlist to avoid group and power dynamics to affect selection.
- Candidates are ranked by the chair of the selection committee using the evaluations from all its members, and top candidates are invited for interview, ensuring gender diversity as detailed in the next point.
- Ideally this leads to a 50/50 gender balance in candidates selected for interview. In any case, there need to be at least one person from either gender on the shortlist. All genders need to be invited for interviews. You can decide yourself how many total candidates you invite. We suggest the following minimum for the gender distribution of the people invited for the interviews:

Total invited	Minimum/maximum of each gender
2	1/1
3	1/2
4	1/3
5	2/3
6	2/4

- If this gender distribution is not achieved naturally, invite the top candidates from either gender.
- Beneficiaries can decide how many candidates to invite for interview.
- Note that contribution to the diversity of the team/workfield (as apparent from the candidates' motivation letter and CV) is considered while shortlisting candidates (to ensure diverse candidates are invited for interviews) but not for selecting the candidates after the interview. This is to avoid discrimination in hiring [e.g. 12]. As such, the selection of candidates after their interview is solely focused on the relevance and quality of their degree, their research potential, communication skills and commitment to the PyroLife vision.

Inform candidates
- Give candidates sufficient time to prepare
- Inform candidates about the duration of the interview and the composition (names) of the selection panel. Share the selection rubric with the candidates.
- Inform candidates that are not invited about this outcome using a standard email message.
- Applying to multiple positions [in the case of ITN projects that may recruit all positions simultaneously]
  o Ask candidates if they have applied to more PyroLife positions so we can keep track of how many unique candidates we have.
  o Send [the project manager] an email of the names of candidates invited

Interview stage
- **Location:** All interviews are either online or in person, as long as all candidates are treated equally. This means that it is not possible to invite one candidate in person and the rest online, to avoid unfair advantage.
- **Costs:** If interviews are done in person, the beneficiary [host institute] responsible for hiring will cover the costs of travel and accommodation from their own budget.
- **Format:** The interview may or may not include a presentation of the candidate's work. If a presentation is asked, communicate expectations and evaluation criteria to the candidate beforehand.
- **Language**: all interviews are conducted in English [or any other language that is the same across all candidates and relevant to the position]
- **Standard questions:** Ideally a set of 2-3 standard questions is asked to every candidate. Suggested questions include:
  o What is the reason you would like to do a PhD?
  o Can you explain why
    ▪ you applied for this particular position
    ▪ you would like to work at this University/Institute/Foundation/Company
  o What would you have done next in your Masters dissertation? (testing whether they can think independently)
  o What do you think the main focus should be in this PhD project and why?
- **Interview duration**: Beneficiaries [host institutes] decide on the standard interview duration, which is equal across all candidates applying for the same position.
- **One or two rounds:** Beneficiaries [host institutes] decide this themselves. If you do a second round you can consider asking the candidate to present their work/vision, or to write a short essay. Make sure to communicate expectations and what they're being evaluated on beforehand, and treat all candidates equally.

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[12] UK government, Employers: preventing discrimination (link)

- **Interview screening**: After each interview, selection committee members note down/fill out the evaluation rubric without discussion with the other panel members. This is to avoid group dynamics that may influence the selection process during the interviews
- **Ranking**: candidates are ranked individually by each selection committee member, then ranking is shared and a preferred candidate is selected.

Inform candidates
- Inform the selected candidate
- Inform the candidates that were not selected and provide feedback on the reasons for this decision (right away, or when asked)

Report statistics
- Report the number of applicants, their gender and their origin send this to [the project manager] for collation, if relevant and desired

Obtaining references/reference letters
When contacting references or asking for reference letters, make sure the full selection committee is informed about unconscious bias in references. For more information see the leaflet created by the University of Arizona below ([link]) – targeted at reference writing but relevant for obtaining of references too.

Avoiding gender bias in reference writing

Got a great student? Planning to write a super letter of reference?
Don't fall into these common traps based on unconscious gender bias.

Mention research & publications
Letters of reference for men are 4x more likely to mention publications and twice as likely to have multiple references to research. Make sure you put these critical accomplishments in every letter!

Don't stop now!
On average, letters for men are 16% longer than letters for women and letters for women are 2.5x as likely to make a minimal assurance ('she can do the job') rather than a ringing endorsement ('she is the best for the job').

Emphasize accomplishments, not effort
Letters for reference for men are more likely to emphasize accomplishments ('his research', 'his skills', or 'his career') while letters for women are 50% more likely to include 'grind-stone' adjectives that describe effort. 'Hard-working' associates with effort, but not ability.
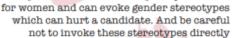
We all share bias
It is important to remember that unconscious gender bias isn't a male problem. Research shows that women are just as susceptible to these common pitfalls as men.
This is a problem for all of us - let's solve it together!

Keep it professional
Letters of reference for women are 7x more likely to mention personal life - something that is almost always irrelevant for the application. Also make sure you use formal titles and surnames for both men and women.

Stay away from stereotypes
Although they describe positive traits, adjectives like 'caring', 'compassionate', and 'helpful' are used more frequently in letters for women and can evoke gender stereotypes which can hurt a candidate. And be careful not to invoke these stereotypes directly ('she is not emotional').

Be careful raising doubt
We all want to write honest letters, but negative or irrelevant comments, such as 'challenging personality' or 'I have confidence that she will become better than average' are twice as common in letters for female applicants. Don't add doubt unless it is strictly necessary!

Adjectives to avoid:	Adjectives to include:
caring	successful
compassionate	excellent
hard-working	accomplished
conscientious	outstanding
dependable	skilled
diligent	knowlegeable
dedicated	insightful
tactful	resourceful
interpersonal	confident
warm	ambitious
helpful	independent
	intellectual

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Commission on the Status of Women

Research from Trix, F & Psenka, C. Exploring the color of glass: Letters of recommendation for female and male medical faculty. Discourse & Society, 2003; and Madera, JM, Hebl, MR, & Martin, RC. Gender and letters of Recommendation for Academia: Agentic and Communal Differences. Journal of Applied Psychology, 2009.

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2. PhD selection rubric

How to use this rubric:
- For shortlisting candidates, fill out this rubric based on the information provided in the candidates' motivation letter and CV
- For interview rating, fill out this rubric based on all information provided, including the interview. Do not assess diversity at this stage.
- Add specific skills required for your position to this rubric prior to screening, where needed

Rating		Poor	Satisfactory	Good	Excellent
Nr of points		1	2	3	4
Relevance and quality of the degree (4 pt max)		Degree not relevant	Moderately relevant degree, or relevant degree with poor grade(s)	Relevant degree, or moderately relevant degree, with distinction/top grade(s)	Relevant degree with with top grade(s)
Evidence of research potential (4 pt max) based on research activity such as Masters thesis		No evidence of research potential. Thesis ok.	Basic research potential: good thesis	Demonstrated research potential: excellent thesis	Excellent research potential: excellent thesis + extras (e.g. paper published, presented at conference)
Communication (4 pt max, average of two categories)	Written & verbal	Poor spelling, grammar and structure; unable to get messages across clearly	OK English, content not entirely relevant	Good English, clearly structured, message is relevant	Excellent English, clearly structured, well written/spoken, message relevant and clearly argued
	Outreach interests & activities (e.g. blog, professional Twitter, science communication, community engagement)	No evidence, no interest	Interest, no evidence	Interest, some evidence	Interest, strong evidence
Commitment to the PyroLife vision (4 pt max, average of two categories)	Interest in fire	No interest in fire	Interest in fire	Interest in fire, awareness of challenges	Interest in fire, and experience with (management of) fire, water, storms and other risks
	Interest in integration and collaboration	No interest in collaboration & integration	Interest in collaboration & integration	Interest in collaboration & integration, awareness of challenges	Evidence of integration & collaboration in training, research or practice

For shortlisting/letter stage only:

Diversity	Yes	No
Nr of points	2	0
Does the candidate contribute to the diversity of your team and the workfield? (e.g. gender, ethnicity, disability, sexuality, cultural background). *Used in letter stage only, not for rating interviews.*	Yes	No

An Excel template of this rubric is included as an attachment to this document, so it can easily be adapted to other projects' needs. In PyroLife, host institutes adapted this rubric for instance by listing specific computer modeling skills, but also the candidates knowledge of a local language or other European languages; their knowledge about literature in some key disciplines; previous experience/training in relevant methods like community engagement, ethnographic research and/or participatory approaches.

Note that while diversity did inform the shortlisting score, we did not explicitly ask for disclosure of this information in the selection process. That would be undesirable and may often even be illegal. Instead, where possible this information was inferred from information included in the application package, or obtained by searching publicly available information online like in LinkedIn profiles, or by checking the gender of names in a probability database. The classification of diversity is subjective and as we worked with rankings we let individual panel members apply their own assessment of this (consistently over all the candidates they scored). As classification of diversity is a sensitive topic and that selection panels logically do not have access to all information, in case of doubt or large uncertainty it may be advisable to check the effect of including this diversity metric on the final ranking. However, we of course fully recognise that through such approaches it is primarily only possible to infer which candidates contribute to the diversity of the team in terms of gender, through names, and ethnicity, where candidate voluntarily provided photographs as part of CVs or have photos associated with their work webpages.

As stated above, for selection of PyroLife candidates, diversity was only considered to ensure a diverse group of candidates was interviewed. In the final selection of these candidates, it was explicitly not a factor.

3. Template motivation letter and required attachments

Rationale: The style, content and length of motivation letters varies between countries and sectors. Clearly communicating expectations regarding motivation letters therefore ensures that all candidates understand the written and unwritten rules. By explicitly informing all candidates about the expectations, a more level playing field is created that limits bias to candidates coming from other cultures and backgrounds, or for candidates who lack the (academic) support networks that more privileged students have.

How this was used in PyroLife: The information below was shared with all PyroLife applications through a Word document on the project website. As we explicitly required the use of this template in all job announcements, it was surprising to see that many applicants did not use the template. For those who did, the template greatly facilitated the screening of candidates and completion of the rubric.

Evaluation: for a next procedure, we recommend developing and sharing similar expectations for the *desired structure of the resume or curriculum vitae*. This CV checklist should include the desired length of the CV and reflect all items screened for in the selection rubric - except for diversity. A CV checklist (not a template) would ensure that candidates can still use their own creativity to draw up their CV's but also know when the potential employer expects a 1-page or 10-page CV. This would ensure that applicants do not miss out on being selected for an interview because they did not know the criteria based on which they would be selected.

Information requested from all PyroLife applicants

Motivation letter

In your motivation letter, please cover the following four topics:
1. Your motivation for the specific research project you are applying for
2. How you can contribute to this research project with your background and skills
3. Your motivation for joining PyroLife as a diverse international training network
4. How you can contribute to the PyroLife approach with your background and skills

Desired length: 1-1.5 page

Use these file names

Save your application using the following file names, in which you replace LASTNAME and FIRSTNAME with your name:
- Motivation letter: "LASTNAME, FIRST NAME – motivation letter.pdf"
- Curriculum Vitae: "LASTNAME, FIRST NAME – CV.pdf"

Annex 1. Early Stage Researcher requirement:

ITN offers funding for early-stage researchers only. To be eligible for recruitment within an ITN project, you therefore must – at the date of recruitment – be within the first four years (full-time equivalent research experience) of your research career and not have a doctoral degree. Full-time equivalent research experience is measured from the date when you obtained the degree entitling you to embark on a doctorate (either in the country in which the degree was obtained, or in the country in which you are recruited), even if a doctorate was never started or envisaged.

I confirm I meet the Early Stage Researcher requirement	yes/no (select one)
Date of award - Masters' degree (dd/mm/yyyy)	
Full-time postgraduate research experience (number of months)	

Annex 2. Mobility requirement

PyroLife as a Marie Curie Action is a researcher mobility programme. You are therefore required to undertake transnational mobility in order to be eligible for recruitment. As such, you must not have resided or carried out your main activity (e.g. work, studies) in the country where you have been recruited for more than 12 months in the 3 years immediately before the recruitment date.

Place of activity/place of residence (previous 3 years, most recent one first)

Indicate the period(s) and the country (countries) in which you have legally resided and/or had your main activity (work, status, ...) during the last 3 years up until the recruitment date (the closing date of the job announcement). Please fill in this section without gaps, until the closing date of the job announcement.

I confirm I meet the Mobility requirement	yes/no (select one)

Period from dd/mm/yyyy	**Period to** dd/mm/yyyy	**Nr of days**	**Country**
Total nr of days			

Add more rows if necessary