

## Criteria for Election Candidates – 2024-2025 biennium

*Specific expertise (and any other criteria) that each Division or Committee is looking for in incoming members.*

The purpose of this document is to help potential nominees understand how IUPAC, its Divisions/Committee and the nomination process work.

### **How IUPAC Works**

A good way to become familiar with the way IUPAC works is to browse its website. The homepage includes five drop-down menus labeled 'Who We Are', 'What We Do', 'Events', 'Projects', and 'News' from which you can quickly gain a good overview of IUPAC. You will learn that IUPAC's focus is on international scientific communication, both among chemists and between chemists the general public. IUPAC's most widely known work is in nomenclature and terminology. As explained on the website, that work has been continued and expanded to a broad array of projects and other activities. While IUPAC does not fund or perform scientific research, interactions among IUPAC participants have led to many fruitful collaborations.

See below for specific on several Divisions.

### **How the Nomination Process Works**

All members of the Division Committee (TMs, AMs and NRs) serve two year terms and can be re-elected subject to limitations explained in IUPAC's Statutes and Bylaws. In most respects all members participate in the Division's work in the same ways. However, TMs receive financial support to attend Divisions/Committees meetings and are expected to be active leaders in the Division's work. Consequently, it is unusual for individuals without demonstrated experience in IUPAC work to be elected to Titular Membership. It is more typical for new members to start as AMs or NRs to gain familiarity with IUPAC and build a record of accomplishment.

The nomination process is handled by the IUPAC Secretariat using an on-line nomination form. Each nominee are invited to include in the curriculum vitae submitted a detailed statement his or her intended contributions to IUPAC. Nominees for TM should provide detailed information of past leadership of project activities at IUPAC or other similar scientific organizations. Nominees for AM and NR should provide specific information about project areas of interest and any past activity.

### **Physical and Biophysical Chemistry Division (Div I)**

Division I would like candidates knowledgeable in one or more of the following areas of expertise:

- General physical chemistry
- Solubility, miscible and immiscible liquid solutions, solid solutions
- Electrochemistry, kinetics, thermodynamics, crystallography
- Surface chemistry and adsorption

## Criteria for Election Candidates – 2024-2025 biennium

- Chemistry of biological systems, biochemistry
- Terminology, symbols, units and conventions in physical and biophysical chemistry
- Compilation and documentation of critically evaluated physical and biophysical chemical databases
- Translation of compilations from English into other languages

### **Polymer Division (Div IV)**

Division IV is seeking candidates with interest in one or more of the following areas:

- polymer synthesis;
- polymerization kinetics;
- polymer processing;
- development of polymer-related terminology;
- development of polymer-related nomenclature;
- green chemistry;
- polymer education;
- editing and maintaining websites (e.g. Wikipedia);
- establishing relationships with industry;
- cooperating with international organizations;
- facilitating scientific exchange.

Division IV is a highly collaborative division and it is expected that candidates will work closely with those within the Division and within the Subcommittees of the Division. More details about Division IV can be found at: <https://iupac.org/body/400>

### **Analytical Chemistry Division (Div V)**

*submitted by David Shaw, 20 Sep 2022*

The Analytical Chemistry Division (ACD), like all divisions and committees of IUPAC, relies entirely on chemists who volunteer their time to collaboratively plan and carry out tasks related to the mission of IUPAC. In order to continue the ACD's work we bring new members onto the Division Committee (composed of Titular Members (TMs), Associate Members (AMs) and National Observers (NRs)) each biennium. In evaluating candidates for membership, we seek to assemble a group of chemists with three characteristics:

- possessing a high level of expertise in one or more aspects of analytical chemistry,
- reflecting the diversity of the world's analytical chemistry community,
- and having the ability and willingness to work collaboratively in multinational groups to achieve shared goals.

#### ***How the ACD Works***

The Terms of Reference found on the [ACD's page](#) of the IUPAC website broadly lay out the goals and objectives of the division. [Projects](#) are the primary tool by which the ACD works toward these goals. While the division always considers proposals in all areas

## Criteria for Election Candidates – 2024-2025 biennium

related to the mission, it also works to group projects around themes to focus and increase the work's impact.

In the recent past a group of projects has systematically reviewed and updated IUPAC recommended definitions of terms in analytical chemistry producing a series of publications in *Pure and Applied Chemistry* and a [monograph](#) containing more than 3000 definitions. Currently work is underway to make these definitions available as a [web-based resource](#). Another example of a program resulting from many projects is the ACD's work in critical [evaluation of solubility data](#) which since the 1970's has produced more than 100 volumes evaluating experimental data in this field. Compilation and evaluation of solubility data is continuing and work is underway to make all of the work published as monographs and journal articles in a [digital format](#) accessible to both humans and machines.

The ACD is actively seeking individuals who will participate in current projects and develop additional projects and groups of projects that contribute to IUPAC's strategic goals in significant ways. It is not necessary to be a member of the ACD Division Committee to participate in the Division's work. Membership in ACD subcommittees and Project Task Groups is largely composed of individuals who are not members of the Division Committee and is frequently an excellent way to get to know the ACD by participating in ongoing work.

Information about the Division's subcommittees and Projects can be found on the [ACD webpage](#). Contact with subcommittee chairs or project task group leaders can be made directly or by contacting [acdiupac\(at\)gmail.com](mailto:acdiupac(at)gmail.com).

### **Chemistry and the Environment Division (Div VI)**

*submitted by Roberto Terzano, 25 Sep 2022*

Through world-recognized expertise and experience via its members and project teams, Division VI makes scientifically sound and timely contributions towards addressing the critical environmental issues. We welcome candidates with knowledge and experience, especially in one or more of the following areas of expertise and seek their contributions to Divisional activities, mainly via advisory committees. (Currently Division VI has two advisory committees, namely (i) Chemical and Biophysical Processes in the Environment and (ii) Crop Protection Chemistry.)

- Climate Change:
  - Chemistry and climate change: monitoring, understanding, preventing, mitigating
  - Methods for reducing and removing greenhouse gases from the atmosphere
  
- Environmental pollutants:

## Criteria for Election Candidates – 2024-2025 biennium

- • New emerging pollutants and their impact on the environment, health and food safety
- • Chemical processes affecting the fate and behaviour of pollutants in the environment
- • Assessment of environmental fate and behaviour (*e.g.* transformation, degradation, transport, mobility) of chemicals in the environment
- • Sampling, analysis, monitoring and exposure assessment of chemicals in the environment
  
- Risk assessment:
  - • Ecological risks assessment and management of chemicals in the environment
  - • Life-cycle analysis for chemical products and their production processes in relation to complex environments
  
- Environmental solutions:
  - • Development of environmentally sustainable processes, chemicals and practices
  - • Novel and cost-effective technologies for environmental remediation
  - • Technology transfer, capability building and community outreach for environmental solutions, especially in emerging economies
- Chemical research to achieve the Sustainable Development Goals
- Environmental Regulation:
  - • Regulatory and policy frameworks regarding chemicals in the environment

We believe in inclusion and diversity principles and aim to have global representation with equal gender participation in the Divisional committee.

Division Titular Members and Associate Members are expected to attend all Division meetings and to participate fully in Division activities as appropriate, including reviews of Projects and Applications for IUPAC Endorsement.

Division National Representatives are expected to be conversant on all Division topics and to offer input as appropriate via e-mail correspondence and through participation in Division conference calls. Active participation to Division activities is also appreciated.

### **Chemistry and Human Health Division (Div VII)**

Division VII is looking for scientists willing to work on a voluntary basis on projects in one or more of the following disciplines:

Drug Development and Discovery (DDD)

Toxicology and Risk Assessment (TRA)

Nomenclature, Properties and Units in Laboratory Medicine (NPU-LM)

## Criteria for Election Candidates – 2024-2025 biennium

Nominees can be either academics or scientists working in the industry, e.g. the pharmaceutical industry, the chemical industry worldwide in the field of toxicology and risk assessment, in regulatory bodies or law enforcement. This list is not exhaustive. Those scientists who are nominated within Division VII are expected to submit projects according to IUPAC rules. When their project is accepted, they are due to deliver within the time schedule they have promised. Division VII will only consider dynamic collaborations and has the authority to end non-performing projects. Project support can be used for meetings (cost of travel and accommodation of project members). Project money does not endorse research.

Elected members of Division VII are also encouraged to take opportunities for collaboration with other IUPAC Committees into consideration.

*Examples of ongoing projects are:*

Series of books: Successful Drug Discovery

Manuscripts: Analytical chemistry of nanomaterials -- critical evaluation; Safety of Engineered Nanomaterials; Glossary of Terms in Molecular Toxicology; The emerging problem of Novel Psychoactive Substances; Properties and units in clinical molecular biology and genetics

Manual: Online Dynamic NPU Manual

### **Chemical Nomenclature and Structure Representation Division (Div VIII)**

Division VIII would like candidates knowledgeable in one or more of the following areas of expertise:

- Development of conventional nomenclature for chemicals;
- Translation of nomenclature rules from English into other languages;
- Chemical identification as applied to databases,
- Computerized handling of chemical names and structures;
- Publishing chemical information;
- Regulatory schemes for chemicals and chemical information (e.g. patents, tariffs, etc.)

### **CHEMRAWN (Chemical Research Applied to World Needs)**

*submitted by Fran Kerton, 27 Sep 2022*

Members of ChemRAWN work to identify world needs amenable to solution through chemistry with particular attention to those areas of global or multinational interest. They serve as an international source of advice for the benefit of governments and international agencies with respect to chemistry and its application to world needs. The Committee promotes the gathering, discussion, advancement, and dissemination of chemical knowledge deemed useful for addressing sustainable development goals ([SDGs](#)).

## Criteria for Election Candidates – 2024-2025 biennium

We welcome candidates (academics, industrial scientists and other professionals) with knowledge and experience in communication, sustainable development, interdisciplinary research and entrepreneurship.

For the next biennium, we would like to see some candidates with expertise in the area of SDG-6 in particular, safe and affordable drinking water, and water quality, wastewater treatment and safe reuse. The committee is in the process of organizing a ChemRAWN conference centered on **water** quality and safe access.

We encourage younger chemists and those from under-represented groups to apply. Scientists who are nominated within ChemRAWN are expected to submit projects, contribute to IUPAC publications, organize in-person/hybrid/virtual meetings and collaborate with other IUPAC divisions and committees. We believe in inclusion and diversity principles and aim to have global representation with equal gender participation in the committee. ChemRAWN is a highly collaborative and interdisciplinary committee, and so candidates will work closely with those within the committee and other committees and divisions of IUPAC. More details about Committee can be found at: <https://iupac.org/body/021>

### Committee on Chemistry Education

*submitted by Marietjie Potgieter, 29 Sep 2022*

The Committee on Chemistry Education (CCE) is a unique forum for chemistry educators and chemistry education researchers to engage in discussions and international collaborations promoting both formal and informal chemistry education. The CCE disseminates evidence-based teaching practices and innovations for high-quality chemistry education through conferences and the journal, *Chemistry Teacher International*. The CCE also collaborates with other IUPAC divisions and committees to promote their educational interests by means of projects and activities throughout the world.

CCE is seeking candidates with expertise in one or more of the following areas:

- Chemistry teaching and learning, pedagogy and cognition;
- Formal chemistry education research;
- Effective use of technology in chemistry education;
- Curriculum and assessment reform;
- Laboratory training;
- Context, diversity and equity in chemistry education;
- Chemistry for sustainability;
- Chemistry teacher education, teacher knowledge and continuous professional development; and
- Informal chemistry education and outreach to promote public appreciation of chemistry, and an understanding of environmental, ethical, and social responsibility issues related to chemistry.

## Criteria for Election Candidates – 2024-2025 biennium

Elected titular members of CCE will be expected to be responsible for a profile area within the work of CCE and engage in initiating and overseeing activities in this area.

### **Committee on Publications and Cheminformatics Data Standards (CPCDS)**

*submitted by Leah McEwen, 15 Nov 2022*

As with the last election cycle, it is very important to continue to engage expertise in many developing areas around scholarly communication, open science and digital transformation. Below are the areas of expertise that CPCDS identified for nominees in the last round and these are still highly desirable.

CPCDS desired expertise :

- scientific/chemistry publishing, including journals, books, databases, magazines;
- digital transformation, open access;
- chemistry data software development, including open source development, web-based services;
- cheminformatics, data driven research/chemistry (emphasis as an emerging need in IUPAC);
- chemistry data management, including industry, large data centers;
- diversity in sector, nationality, gender;
- similar skills in neighboring disciplines (e.g., bioinformatics)

/last edited 15 Nov 2022/