FACULTY OF MATHEMATICS

ADDRESS: 48 Moika Emb., bld.1

191186, Saint-Petersburg, Russia

Tel./fax: 8(812)3144996

matematica@herzen.spb.ru

Dean – Professor Viktor Budaev, Doctor of Science (Physics&Mathematics)

Tel./fax: 8(812)3144996

E-mail: matematica@herzen.spb.ru, budaev@list.ru.

DEPARTMENTS:

Department of Algebra:

- Linear algebraic groups,

- Invariant Theory,

- Finite Groups of Lie type,

- Technique of Teaching of Algebra at Pedagogical Universities.

Department of Geometry:

- Algebraic and Geometrical Topology,

- Technique of Teaching of Geometry at Schools and Universities.

Department of Computer Science:

- Mathematical modeling of transport processes in a human body,

- Improvement of quality of educational process with use of information tech-nology.

Department of Mathematical Analysis:

- Problems of approximation and the Theory of operators in Banach spaces,

- The modern group analysis of the Differential Equations,

- The Spectral Theory of non self-conjugate Differential Operators,

- Problems of Mathematical Education in Universities and profile school,
- Training of mathematically gifted pupils.

Department of methods of teaching and learning mathematics:

- System of methodical maintenance of multi-cycle continuous Mathematical Education.

The Faculty offers the following programs:

Bachelor Degree:

Mathematical Education.

Computer Science and Computer Technologies in Education.

Applied Mathematics and Computer Science.

Master Degree:

Mathematical Education.

Mathematical Education in a system of Profile Education.

Computer Science Technologies in Physical and mathematical Education .

Mathematical Modeling.

Modules for foreign students:

1. Linear Algebra, 4, one term course or one year course.

2. Algebra, 12, two year course.

3. General Topology, 4, one year course.

4. Methodology and methods of teaching and learning mathematics, 2, 1st semester in each academic year.

5. Methods and technologies of teaching mathematics, 4, 2-nd semester in each academic year.

6. Development of spatial thinking when learning geometry, 2, 1st semester in each academic year.

7. Using IT educational resources in the process of teaching and learning mathematics, 1, 2-nd semester in 2012-2013 academic year.

8. Realization of design and research activity while learning mathematics: how to organize in classroom and at home, 1, 2-nd semester in 2012-2013 academic year.

9. Linear Algebraic Groups, 2, one term or one year course.

10. Invariant Theory, 2, one term course.

11. Finite groups of Lie types, 2, one term course.

12. Introduction of algebraic geometry, 4, one year course.

13. Galois Theory, 2, one term course.

14. The Mathematical Analysis, 18, three year course.

15. The module "Mathematical methods in economy", 6, three terms.

16. Statistical methods in pedagogical researches, 2, one term course.

17. The theory of games and research of operations, 2, one term course.

Course ***Mathematics for educational continuation or Mathematics for continuation of education.***

Course ***Basis of mathematical modeling in biology, chemistry, geography*** (4 cr.) - 1st semester in each academic year.

Course ***History of mathematical education***

In meantime members of the Chair of Algebra have joint scientific research in theory of linear algebraic groups and finite groups of Lie type with colleagues from Bielefeld University (Germany) and in Bar-Ilan University (Israel).

The Chair also has joint research projects with the University of Northern Iowa (USA).

The Chair of Methods of Teaching and Learning mathematics realizes the following research problems reflecting the educational innovations:

1. Forming the universal educational skills and achieving the meta-subject results by means of mathematics;

2. Using IT educational resources in the process of teaching and learning mathematics and developing the system of distant learning mathematical education;

3. Discovering, developing and realization of students' investigative potential in the process of teaching and learning mathematics;

4. Means to achieve understanding in learning mathematics, representation of algebraic information in different ways;

5. Critical thinking means of algebra and analysis;

6. Training material for the development of divergent thinking when learning geometry.

The Chair of Mathematical Analysis: Professor Zaitsev V.F. is the co-author of the series of monographs of help character on the differential equations. These books was published in USA, UK, Russia and are well-known in all the world.

The Chair of Geometry: Main research activities are in the Theory of Manifolds and Algebraic Topology. There are scientific contacts with some universities and mathematical institutes of France, Germany, USA.

Members of the Chair of Algebra had published works with co-writers from Cambridge University (UK), the University of Toronto (Canada), Bielefeld University, Heidelberg University, University of Dusseldorf (Germany), Bar-Ilan University (Israel).

Members of the Chair of Algebra were invited as speakers at International Conferences and work-shops, in particular, in Austria (ESI, Vienna), Germany, Italy, Israel, Ireland, UK (Isaak Newton Institute for Mathematical Science).

Members of the Chair of Algebra were speakers at scientific seminars at universities of Canada (Toronto, Waterloo), France (Paris VI-VII), Germany (Berlin, Bielefeld, Bohum, Hamburg, Heidelberg), Israel (Jerusalem, Tel Aviv, Bar-Ilan), Italy (Milan, Padova), Switzerland (ETH, Zurich), UK (Aberystwyth, Birmingham, Cambridge, Durham, London, Manchester, Nottingham, University of East Anglia), USA (Brandies, Johns Hopkins University, Northwestern University, Wane State University, University of Michigan (Ann Arbor), University of Notre Dame, Yale University), Max-Plank Institute (Bonn).