ADMINISTRATION, TEACHING AND RESEARCH PHILOSOPHIES

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A simple, direct, fast point of view regarding my perception of Administration Philosophy, Teaching Philosophy, Research Philosophy (including My Own Research), and What I Can Bring to This Institution.

1. Administration Philosophy

- The Department Chair is an administrator (not a ruler) in order to serve the Faculty, students, the Dean and the Provost;

- Chair is an interface between Math Department Faculty and upper level administrators;

- Collective Leadership in the department, i.e. all important actions and decisions taken by departmental discussion and vote; we thus learn to accept decisions taken by the majority;

- Delegation of responsibility and authority to Faculty (decentralization within the department);

- Analyzing the recommendations and suggestions from Faculty and staff;

- Flexibility of Chair and Faculty;

- Fairness of the Chair and Faculty;

- Active listening of Chair and Faculty;

- Students first;

- Canals of communication with departmental Faculty and staff: through emails to all of them, plus printing the email and putting it in everybody's mail box (internal mail); telephones; appointments;

- Similar communication with the upper level: Dean of Arts & Letters College, Provost; according to Confucius Theory where the order and discipline is a way of life, the Chair follows the upper level administrators.

- Short department meetings as needed;

- Meeting agenda made before the meeting and sent to everybody about one week ahead; new agenda items can be added, or other deleted as per Faculty request;

- Evaluation of performance of Chair and Faculty;

- Availability of the Chair and Faculty;

- Socializing the whole department through: pot lucks, going together to restaurants, sport if possible, hiking, swimming;

- Considering *empathy* to solve conflict, i.e. everybody should respect the other one and his/her ideas – even if not agreeing with him/her (using fuzzy logic and neutrosophic logic, where something or somebody can be partially true and partially false in the same time – so we need to work together even if we are different);

- We are influenced by each other; that's why we need to be positive to each other (because otherwise negativity would propagate); we need to rely on each other;

- Everybody has different beliefs and attitudes, therefore we need to converge all of them to the Departmental and College goals;

- It is normal in a group of people to have conflicts and contradictions; we need to bend the contradictions; we need to learn to live with contradictions and try to diminish contradictions;

- We learn to live with challenges as well;

- Collaborative team work;

- I am popular; students, faculty, staff call me Florentin.

2. Teaching Philosophy

- Infusion of Technology in the class room: graphing calculators (Texas Instruments, Casius, etc. calculators) for undergraduate and graduate students; mathematical software such as "Mathematica," "Apple, " and other computer algebra systems;

- Teaching through undergraduate or graduate research; telling students to question themselves; encouraging students to ask questions in class (to have a dialogue, not a monologue in class);

- Offer Honor Classes;

- Distance Education; teaching online more classes and programs;

- Attract students by doing math through games, math for kits, math jokes, funny math, recreational problems, showing students the math used in our everyday math;

  An example of the importance of the space in mathematics I often tell my students in various classes:

  a) On a power line there are 10 birds. A hunter kills 3 of them. How many are left?

  b) On a plain in the grass there are 10 birds. A hunter kills 3 of them. How many are left?

  c) In a cage there are 10 birds. A hunter kills 3 of them. How many are left?

  d) In the sky are flying 10 birds. A hunter kills 3 of them. How many are left?

  My students laugh when trying to guess the answer. And next times they are again asked me: can you tell us more funny problems?

- Or tell them about the <u>Beauty of Math</u>!

$$1 \text{ x } 8 + 1 = 9$$
$$12 \text{ x } 8 + 2 = 98$$
$$123 \text{ x } 8 + 3 = 987$$
$$1234 \text{ x } 8 + 4 = 9876$$
$$12345 \text{ x } 8 + 5 = 987\ 65$$
$$123456 \text{ x } 8 + 6 = 987654$$
$$1234567 \text{ x } 8 + 7 = 9876543$$
$$12345678 \text{ x } 8 + 8 = 98765432$$
$$123456789 \text{ x } 8 + 9 = 987654321$$

- Develop and adjust the Curriculum for the needs of the students;

- Foster students' learning;

- Being creative in teaching; continuously updating and improving the style of teaching in order to avoid monotony;

- Adjusting the teaching methods depending to the type of students: there are visual learners, and audio learners;

- Examine students learning style in order to adjusting the teaching style for their way of understanding;

- <u>Interacting with students</u>;

- <u>Stimulate students</u> by giving them extra-points towards the final grade for extra-homework and for class participation (I have students solving problems on the board during the class time and explaining them to the other students);

- Active learning, not passive learning; logical learning, not mechanical learning;

- Learning in groups;

- Learning by connecting the new knowledge with old knowledge;

- Making connections between math knowledge and other domains' knowledge;

- Exchange teaching ideas with other faculty from this institution or from others;

- Applicability of Math: make students understand that math is important in our real life;

- Bringing students off from monotony and passivity by telling them funny math stories, math curiosities, anecdotes about mathematicians, also about mathematicians' lives, etc.

- Evaluate students' critical thinking, problem-solving, technical writing, content knowledge;

- Discover students' psychology of learning;

- Challenge students' intellectuality;

- Short History of Math told to students when teaching a special topic, so the students see the evaluation of the topic, why it was needed, how it arose;

3. Research Philosophy

- Research that benefits the students and the society;

- Educate students through research;

- Be a model for the students;

- Use deductive and inductive methods of research;

- Undergraduate or graduate research projects assigned to the students;

- Attracting students to do research by involving them in our own research;

- <u>How to generalize</u> a problem? How to generalize a theorem? What about if the given hypotheses of a theorem are changed? Check many examples. Check corner cases. Trial and error in research

- Explore in depth the topic; do a survey of the literature

- Ask for help if not able to solve a problem, and thus co-author the research;

- Break down a bigger problem into smaller problems, and then solve each of them;

- Make connections with other subjects;

- Aboard the problem from various angles, various methods;

- A small idea sparkle can lead to a great outcome;

- Solve real problems;

- Keep a professional integrity;

- Interdisciplinary research;

- How to mathematically model a real problem?

- Research in teaching: how to better methods and strategies of teaching? How to motivate the students to learning?

- Research in pure and applied math;

- Research in order to solve existing unsolved problems, open questions, conjectures;

- <u>Thinking differently</u>! Sometimes a stupid apparently question can lead to a genial idea! {For example, why differentiating 2 or 3 times and not… 2.7 times? And similarly for integration. This lead to the fractional differentiation and fractional integration.}

- Question the classical theories to see if it's room for alternative or generalizations (look for example at the evolution from Euclidean Geometry to its opposite Non-Euclidean Geometry);

- What research methods to use?

- Disseminate the research results; how are they useful to the society? Theoretical research can lead to applications;

- Look for Research Grants and Fellowships for students and Faculty;

- Create a Digital Library of Math e-Books and e-Articles as support for the research;

- I partially paid for my Conferences trips; I did most of my research in my spare time (especially in weekend, or after classes);

- Research for me is a hobby.

My Own Research

- Applied Mathematics in Information Fusion (used in robotics, airspace, military, medicine);

- Granular Computing (Neutrosophic Logic and Set and their applications);

- Algebraic Structures;

- Applied Mathematics in Quantum Physics, Statistics, Economics;

- Non-Euclidean Geometry;

- Number Theory (Arithmetic Functions, Sequences, Diophantine Equations and Systems, Prime Numbers).

4. **What I can bring to this institution**:

- "Progress in Physics" international journal of physics and mathematics will becomes Texas A & M University-Kingsville's international journal (the correspondence address would be that of this institution); I am an associate editor of this journal since the journal was founded in 2005, and I get all work in my spare time – without asking for release time or for a penny from my university;

- Publish periodically a collective volume of research math papers of our math Faculty; then put the book in international scientific databases, such as EBSCO, CENGAGE, ProQUEST, Amazon Kindle, Amazon.com, Google Book Search, Google Scholar

- Endorse Faculty who did not yet submit papers to arXiv.org (online scientific database at Cornell University, NY);

- A Digital Library with over 300 titles of e-books and e-journal issues and over 100 scientific papers for the benefit of students, researchers and professors from around the world [for example this site of mine has presently about 7,000 hits/day from people from about 100 countries];

- Donation of books and journals periodically to the TAMUK James C. Jernigan library; (by the way I have a special collection at The University of Texas at Austin, Archives of American History);

- Attracting more students from around the world to do their graduate study in pure or applied mathematics at this university due to this Digital Library with free e-books and e-

articles; I am in touch with many people from around the world and they asked me if I can be an advisor for their future or if I know someone else to recommend to them;

- 62% of the students at TAMUK are Hispanics; I speak and understand a little Spanish (which is a romance language close to Romanian and French that I am fluent in);

- I also have a degree in Computer Science (M. Sc.), therefore I can interact with the Computer Science Department for interdisciplinary research (for example in Granular Computing);

- Search for more Grants and Fellowships for students and Faculty;

- Organizing the AMATYC [American Mathematical Association for Two Years Colleges] Competition for undergraduate math students (if it is not already in place herein; checking your website I did not find it);

- Cooperating with Dr. Reza R. Ahangar, the advisor for his the Math Club, and with other interested Faculty in order to make a similar Funny & Recreational Math Problems Club (to show the students the beauty of math!), Math jokes (to get out of the teaching monotony); this would also attract students to math;

- Setting up, if needed, of a Reconciliation Committee, within the department in order to discuss with the conflicting parties and try to reconciling them;

- Introduce Math Labs associated with many math courses [of course if approved by the Curriculum Committee] in order to assist students in doing their homework (that's, for example, what UNM does for undergraduate classes: Intermediate Algebra, College Algebra, Pre-Calculus, Trigonometry, Calculus for Business, etc.) of 1 credit hour in order to increase retention;

- Add new graduate classes to the current core of classes that I can teach, such as: Number Theory, Abstract Algebra, Neutrosophic Logic/Set (Generalization of the Fuzzy Set/Logic), Foundations of Non-Euclidean Geometry, Mathematics Applied in Information Fusion, Granular Computing; a bigger diversity of math courses and programs attracts more students;

- Try to develop a Ph D Program in Math, or in Bilingual Mathematical Education (derivative of Ph D Bilingual Education Program already existent in the College of Graduate Studies) – of course if approved by the Curriculum Committee and the upper level administrators.

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