**Department of Mathematics & Statistics**
**Concordia University**

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**MAST 699 (MAST 833), Sec. B**
Topics in Algebra
Topic: *Complex & P-Adic Analytic Number Theory*
***Winter 2016***

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| **Instructor:** | Dr. A. Iovita, Office: LB 927-5 (SGW), Phone: 848-2424, Ext. 3265<br>Email: adrian.iovita@concordia.ca |
| **Class Location:** | LB 655 (To be confirmed)<br>Concordia Library Building, 1400 de Maisonneuve Blvd. West |
| **Office Hours:** | Mondays &Wednesdays, 10:00-11:30. |

**Main Topics:**
1) The Riemann zeta function and its main properties: meromorphic continuation, functional equation, special values.
2) p-Adic measure theory.
3) Bernoulli numbers and their properties.
4) The p-adic zeta function and p-adic L-functions attached to Dirichlet characters.
5) Special values of p-adic L-fucntions
6) p-Adic L-functions attached to elliptic curves over the rationals.

**Main Text:** Neal Koblitz, p-adic Numbers, p-adic Analysis and Zeta-Functions, Graduate Texts in Mathematics 58, Springer-Verlang (N.Y.,Berlin, Heidelberg, 1991.

**Outline:** The first part of the course will present in parallel the complex and p-adic zeta functions and the L-functions associated to Dirichlet characters. The second part of the course will be dedicated to the study of the p-adic L-functions attached to elliptic curves over the rationals.

**Evaluation:**

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| Problem sets (4) | 40% |
| Oral + written presenation | 60% |