

**MAS7397/0016/19287 Introduction to Representation Theory (Dr Sin) Spring 2023**

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Jan 9th 1 Classes Begin Group representations	10th 2	11th 3 Matrix rerepresentations, equivalence	12th	13th 4 End of Drop/Add KG-modules
16th Martin Luther King Jr. Day	17th 5	18th 6 Submodules, homomorphisms, quotients	19th	20th 7 Simple modules, Schur's Lemma
23rd 8 Abs. irreducibility, complete reducibility, Maschke's Thm	24th 9	25th 10 Double Centralizer Thm, Wedderburn decomposition	26th	27th 11 Examples
30th 12 Functions on a group. Schur Coefficient relations	31st 13	Feb 1st 14 Characters	2nd	3rd 15 Irreducible Characters, Orthogonality relations
6th 16 Character tables, examples	7th 17	8th 18 Functions on Abelian groups, Fourier analysis on finite abelian groups	9th	10th 19 Integrality properties of characters
13th 20 Burnside's $p^a q^b$ Theorem	14th 21	15th 22 Module constructions, tensor products, Hom's	16th	17th 23 Restricted and induced representations and class functions
20th 24 Frobenius's Thm	21st 25	22nd 26 Hurwitz's Thm on composition algebras	23rd	24th 27 Normal subgroups, Clifford's Thm
27th 28 Clifford theory	28th 29	Mar 1st 30 Use Clifford theory to compute character tables	2nd	3rd 31 Intro to Diff. Manifolds
6th 32 Tangent space	7th 33	8th 34 The differential	9th	10th 35 Lie groups and their atlases
13th Spring Break	14th Spring Break	15th Spring Break	16th Spring Break	17th Spring Break
20th 36 Examples	21st 37	22nd 38 Lie algebras and their representations	23rd	24th 39 Lie algebra of Lie group

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27th <b>40</b> Computations for $SL(2)$	28th <b>41</b>	29th <b>42</b> representations of $SL(2)$	30th	31st <b>43</b> f.d reps of $sl(2, C)$
Apr 3rd <b>44</b> f.d. reps of $sl(2, C)$	4th <b>45</b>	5th <b>46</b> Lie algebra repre- sentations: Highest weights	6th	7th <b>47</b> Student Presentation
10th <b>48</b> Student Presentation	11th <b>49</b>	12th <b>50</b> Student Presentation	13th	14th <b>51</b> Student Presentation
17th <b>52</b> Student Presentation	18th <b>53</b>	19th <b>54</b> Student Presentation	20th	21st <b>55</b> Student Presentation
24th <b>56</b> Student Presentation	25th <b>57</b>	26th <b>58</b> <small>Classes end</small> Student Presentation	27th	28th <b>59</b>